



United States
Department of
Agriculture

In cooperation with
the Texas AgriLife
Research



Natural
Resources
Conservation
Service

Soil Survey of Kenedy and Kleberg Counties, Texas



How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

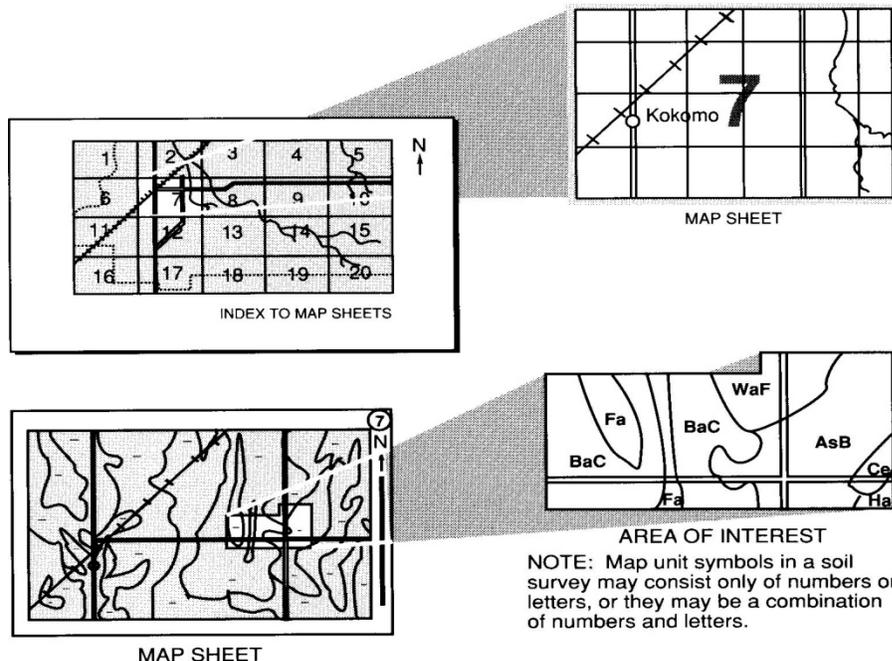
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and go to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Go to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Texas AgriLife Research, and local agencies. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2007. Soil names and descriptions were approved in 2007. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2007. This survey was made cooperatively by the Natural Resources Conservation Service and the Texas AgriLife Research. The survey is part of the technical assistance furnished to the Kenedy County Commissioners Court, National Park Service, and the Kenedy and Kleberg Soil and Water Conservation District.

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Cover: An area of Dune land encroaching upon live oak trees. The active dunes in the survey area are migrating toward the northwest because of the strong, sustained southeast winds. In the foreground is an area of Falfurrias-Cayo complex, 0 to 8 percent slopes.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is <http://www.nrcs.usda.gov>

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or Texas AgriLife Extension Service.



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Soil Survey of Kenedy and Kleberg Counties, Texas

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United States Department of Agriculture, Natural Resources Conservation Service,

In cooperation with

Texas AgriLife Research

Kenedy County (fig. 1) is in the Central Rio Grande Plain Region of Texas. It is unique because of its low rainfall, high rate of evaporation, and persistent southeasterly winds. The southeasterly winds have affected nearly all of the topographic features within the county. The area is predominantly a nearly level and gently undulating eolian sand plain. The surface consists of hummocky or elongated ridges and swales, which are aligned from southeast to northwest because of the prevailing southeasterly winds. Most of the ridges have been stabilized by native grasses and live oak trees. Those that have not been stabilized are active and are moved slowly by the winds in a northwesterly direction during the dry summer months.

The drainage systems in the county are small, localized, and not integrated. The amount of rainfall that accompanies hurricanes and major storms cannot be discharged by the small drainage systems; therefore, broad areas in the county may be flooded for weeks following a major storm. Los Olmos Creek, in the northeastern part of the county, is the only open drainage system that flows to the Gulf of Mexico.

Elevations range from about 0 feet at sea level in the eastern part of the county to about 50 feet in the western part.

The major uses of agricultural land in Kenedy County include cattle ranching and wildlife habitat.

The soils formed under grass vegetation and are dominantly light colored, sandy, and dry. Erosion, salinity, wetness, and natural fertility are major factors that influence the agricultural uses of the soils.

Kleberg County (fig. 1) is one of several counties that form an almost uniform curve on the western coast of the Gulf of Mexico. This curve is known locally as the Coastal Bend of Texas. The northern part of Kleberg County makes up the southern portion of this curve. Its mainland is part of a nearly level coastal plain that is about 30 miles wide and is comprised of mainly clayey, blackland soils. The southernwestern part of the county is Sand Sheet prairie.

An ancient Nueces River valley (currently covered by recent sandy eolian sediments) once flowed along the southern boundary of the county and emptied into Baffin Bay.

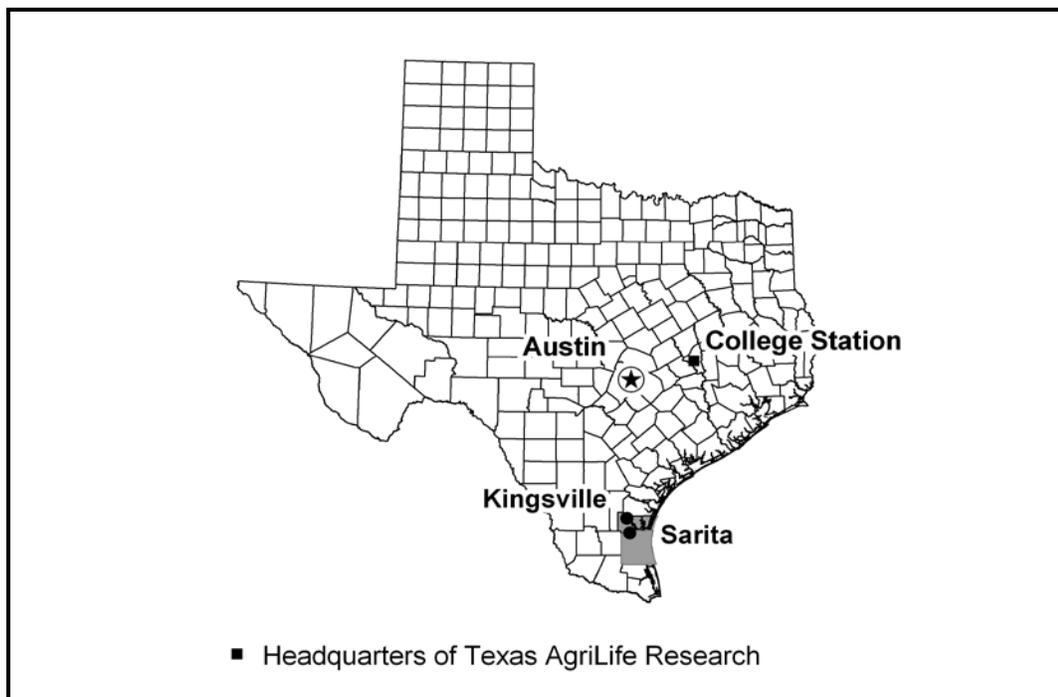


Figure 1.—Location of Kenedy and Kleberg Counties, Texas.

About three-fourths of the land area consists of a nearly level, fairly smooth coastal terrace that, on the average, falls about 3 feet in a mile. Drainage is mainly to the southeast through the shallow, narrow channels of Santa Gertrudis, Tranquillas, San Fernando, Chiletpin, Tunas, Escondido Jaboncillos, and Ebanito Creeks. These creeks cross Kleberg County and empty into Baffin Bay.

Elevation ranges from about 0 feet at sea level in the eastern part of the county to about 30 feet in the western part.

The major uses of agricultural land in Kleberg County include cattle production, wildlife habitat, and row crops such as cotton and grain sorghum. Few areas are used as pasture and hayland.

Erosion, salinity, and wetness are major factors that influence the agricultural uses of the soils.

Padre Island National Seashore is along the southern gulf coast of Texas. It is about 68 miles long. It is 4 miles wide in the northern third of the island and 3 miles wide in the southern two-thirds of the island. Padre Island National Seashore lies in the Gulf Coast Saline Prairies Major Land Resource Area. It is on the eastern edges of Kleberg and Kenedy, Counties. The land surface is nearly level, but the foredune ridge along the beach is undulating.

Padre Island is separated from the Texas mainland by the Laguna Madre. The Laguna Madre extends from Corpus Christi Bay in the north to Santiago Pass near the mouth of the Rio Grande. Baffin Bay is an inland bay between Kenedy and Kleberg Counties. The Laguna Madre and Baffin Bay systems are thus relatively unaffected by daily tides which, on the Gulf side of the island, are generally about 1.5 feet. The absence of an open path to the Gulf of Mexico has created a hyper-saline environment.

Elevations range from 0 to about 45 feet above sea level, but most of the island is at an elevation of less than 20 feet.

The major land use on Padre Island National Seashore is wildlife habitat and recreation. Most of the recreation is either on the beach, in the surf, or in the Laguna Madre via Bird Island Basin (fig. 2).



Figure 2.—Laguna Madre separates Padre Island from Texas mainland. This area of beaches is located in Kleberg County and provides recreation opportunities and wildlife habitat.

General Nature of the Survey Area

This section provides general information about the history and climate of Kenedy and Kleberg Counties.

History

Kenedy and Kleberg Counties, on U.S. Highway 77 south of Corpus Christi in the Rio Grande Plain region of South Texas, was named for pioneer rancher Mifflin Kenedy and Robert Justus Kleberg, whose son, also named Robert Justus Kleberg was manager of the King Ranch. It is bordered by Nueces County on the north, the Gulf of Mexico on the east, Willacy County on the south, and Jim Wells, Hidalgo, and Brooks Counties on the west.

Among the oldest artifacts found in the county are stone implements and human remains dating from the Paleo-Indian period (9200 to 6000 B.C.). Though occasional Spanish expeditions crossed the area during the early eighteenth century, the region remained uninhabited by Europeans until the mid-1740s and the early 1750s. Sixteen land grants were made in the Kenedy County area by the Spanish and Mexican governments in the late 1700's. During the Mexican period the number of ranches in the area grew, but hostile Indians and the Texas Revolution forced many families to abandon their ranches. In 1846, American troops commanded by General Zachary Taylor went through Kleberg County on their way to the Rio Grande. Shortly after the army reached the river, the land that is now in Kleberg County was designated a part of Nueces County; it remained so for many years.

During the second half of the nineteenth century the area had steady growth of Anglo-Americans in South Texas. In 1853 Richard King purchased the Santa Gertrudis grant in Kleberg County from the heirs of the original Spanish grantees and started the King Ranch. The history of Kleberg County during the next fifty years is almost indistinguishable from that of the ranch (fig. 3).



Figure 3.—The Carriage House, part of the original Santa Gertrudis Ranch.

Climate

Prepared by the Natural Resources Conservation Service National Water and Climate Center, Portland, Oregon.

Kenedy County

Climate tables are created from the climate station at Port Mansfield Texas.

Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from First Order station Brownsville, Texas.

Table 1 provides data on temperature and precipitation for the survey area as recorded at Port Mansfield in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 59 degrees F and the average daily minimum temperature is 51 degrees. The lowest temperature on record, which occurred at Port Mansfield on December 23, 1989, is 15 degrees. In summer, the average temperature is 82 degrees and the average daily maximum temperature is 88 degrees. The highest temperature, which occurred at Port Mansfield on May 31, 1963, is 103 degrees.

Growing degree days are shown in Table 1. They are equivalent to "heat units". During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is about 26 inches. Of this, about 26 inches, or 100 percent, usually falls in December through January. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 14.30 inches (during hurricane Beulah) at Port Mansfield on September 21, 1967. Thunderstorms occur on about 26 days each year, and most occur in September.

Snowfall is rare. The greatest snow depth of 2.0 inches occurred on December 25, 2004.

The average relative humidity in mid-afternoon is about 61 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The sun shines 76 percent of the time in summer and 43 percent in winter. The prevailing wind is from the south-southeast. Average wind speed is highest, 12.4 miles per hour, in April.

Kleberg County

Climate tables are created from the climate station at Kingsville, Texas.

Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from the First Order station at Corpus Christi, Texas.

Table 4 provides data on temperature and precipitation for the survey area as recorded at Kingsville in the period 1971 to 2000. Table 5 shows probable dates of the first freeze in fall and the last freeze in spring. Table 6 provides data on the length of the growing season.

In winter, the average temperature is 58 degrees F and the average daily minimum temperature is 46.2 degrees. The lowest temperature on record, which occurred at Kingsville on December 24, 1989, is 10 degrees. In summer, the average temperature is 84 degrees and the average daily maximum temperature is 95 degrees. The highest temperature, which occurred at Kingsville on August 14, 1962, is 108 degrees.

Growing degree days are shown in the table 4. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is about 30 inches. Of this, about 27 inches, or 90 percent, usually falls in February through November. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 6.85 inches at Kingsville on August 11, 1980. Thunderstorms occur on about 29 days each year, and most occur in April or September with 5 days of thunderstorms.

The average relative humidity in mid-afternoon is about 68 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The sun shines 77 percent of the time in summer and 47 percent in winter. The prevailing wind is from the south-southeast. Average wind speed is highest, 14 miles per hour, in March and April.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size, and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

1. Palobia-Padrones-Quiteria

Moderately well drained, moderately slowly permeable, very deep soils

This map unit occurs on the Sand Sheet on the South Texas Coastal Plain. This map unit makes up about 19 percent of the total area. It is about 35 percent Palobia soils, 28 percent Padrones soils, 11 percent Quiteria soils, and 26 percent other soils.

Slopes range from 0 to 3 percent. The soils formed in sandy and loamy eolian sediments (fig. 4).

Palobia soils are very deep, well drained, and have moderately slow permeability. Typically the surface layer is neutral fine sandy loam about 15 inches thick. The upper part of the subsoil is slightly alkaline sandy clay loam to a depth of 33 inches. The lower part of the subsoil is moderately alkaline sandy clay loam to 80 inches.

Padrones soils are very deep, moderately well drained, and have moderately slow permeability. Typically the surface layer is moderately acid fine sand about 26 inches thick. The subsoil is neutral sandy clay loam to 80 inches.

Quiteria soils are very deep, moderately well drained, and have moderately slow permeability. Typically the surface layer is slightly acid fine sand about 11 inches thick. The upper part of the subsoil is slightly alkaline fine sandy loam to 34 inches. The lower part of the subsoil is moderately alkaline sandy clay loam to 80 inches.

Of minor extent in this map unit are Bordas, Nueces, Ramita, and Sarita soils. Bordas are wetter soils in depressions. Ramita soils are wetter and in drains. Nueces and Sarita soils are in similar to higher positions.

These soils are used almost exclusively for livestock grazing and wildlife habitat.

2. Falfurrias-Sarita

Well drained to excessively drained, moderately slowly to rapidly permeable, very deep soils

This map unit occurs on vegetated dunes of the Sand Sheet on the South Texas Coastal Plain. This map unit makes up about 18 percent of the total area. It is about 45 percent Falfurrias soils, 29 percent Sarita soils, and 26 percent other soils.

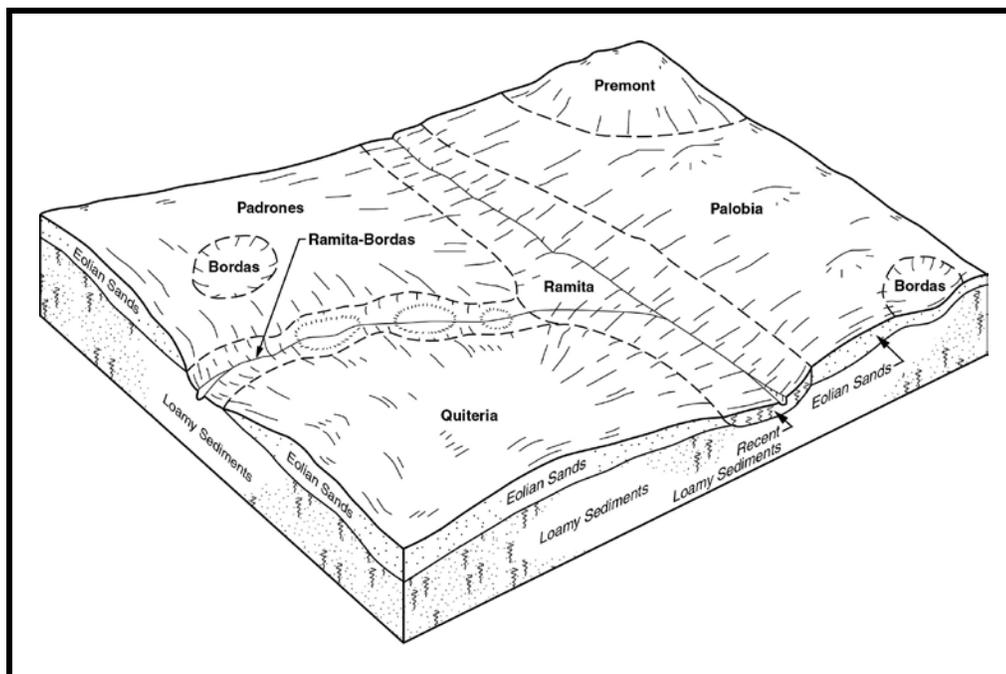


Figure 4.—Patterns of soil and underlying material in the Palobia-Padrones-Quiteria general soils map unit.

Slopes range from 1 to 8 percent. The soils formed in eolian sandy deposits over loamy eolian and alluvial sediments (fig. 5).

Falfurrias soils are very deep, excessively drained, and have rapid permeability. Typically the surface layer is neutral fine sand about 15 inches thick. The underlying layer is strongly acid fine sand to 80 inches.

Sarita soils are very deep, well drained, and have rapid permeability. Typically the surface layer is slightly acid fine sand about 64 inches thick. The subsoil is slightly acid fine sandy loam to 80 inches.

Of minor extent in this map unit are Estella, Padrones, Nueces, and Sauz soils. Estella, Nueces, and Padrones soils are in similar to lower positions. Sauz soils are in drains.

These soils are used almost exclusively for livestock grazing and wildlife habitat.

3. Palobia-Colmena-Czar

Well drained, moderately permeable and moderately slowly permeable, very deep soils

This map unit occurs on terraces and the Sand Sheet on the South Texas Coastal Plain. This map unit makes up about 14 percent of the total area. It is about 39 percent Palobia soils, 28 percent Colmena soils, 27 percent Czar soils, and 6 percent other soils.

Slopes range from 0 to 3 percent. The soils formed in loamy alluvium and eolian sediments over loamy alluvium deposits.

Palobia soils are very deep, well drained, and have moderately slow permeability. Typically the surface layer is neutral fine sandy loam about 15 inches thick. The upper part of the subsoil is slightly alkaline sandy clay loam to a depth of 33 inches. The lower part of the subsoil is moderately alkaline sandy clay loam to 80 inches.

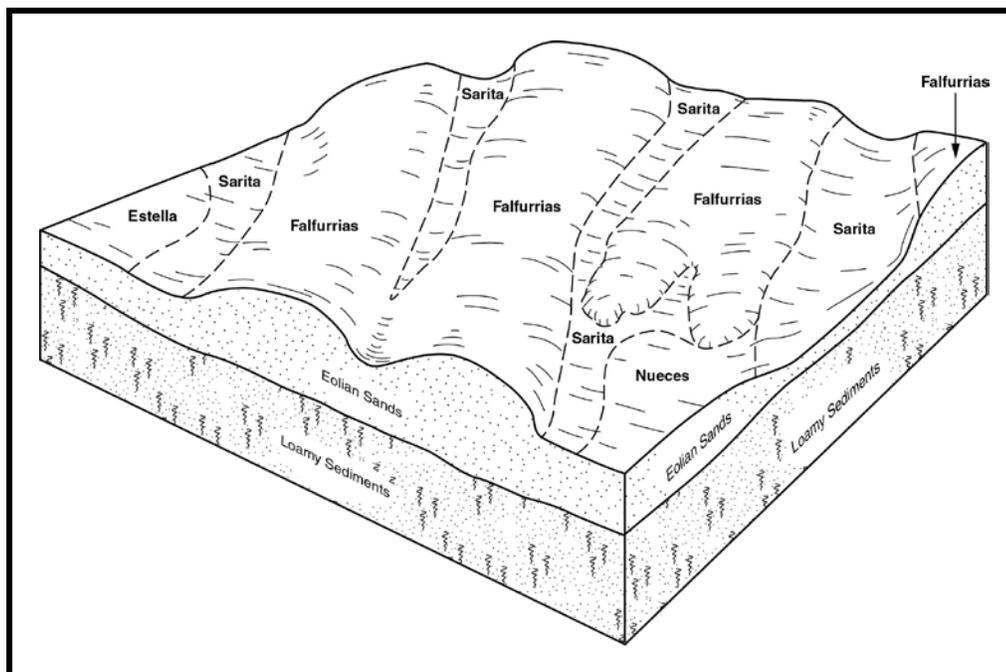


Figure 5.—Patterns of soil and underlying material in the Falfurrias-Sarita general soil map unit.

Colmena soils are very deep, well drained, and have moderate permeability. Typically the surface layer is neutral fine sandy loam about 14 inches thick. The upper part of the subsoil is slightly alkaline sandy clay loam to 39 inches. The lower part of the subsoil is slightly alkaline sandy clay loam to 80 inches.

Czar soils are very deep, well drained, and have moderate permeability. Typically the surface layer is neutral fine sandy loam about 7 inches thick. The upper part of the subsoil is slightly alkaline sandy clay loam to 61 inches. The lower part of the subsoil is strongly alkaline sandy clay loam to 80 inches.

Of minor extent in this map unit are Gullied land-Riverwash miscellaneous areas and the Delfina, Gertrudis, and Papagua soils. Gullied land-Riverwash miscellaneous areas are along drainageways and local streams. Delfina and Gertrudis soils are on slightly higher knoll positions. Papagua are in depressions and drains.

These soils are used extensively for livestock grazing and wildlife habitat. Other uses include crop and forage production. Crops include wheat, grain sorghum, cotton, and improved bermudagrass varieties.

4. Victoria-Cranell-Banquete

Moderately well to well drained, slowly permeable and very slowly permeable, very deep soils

This map unit occurs on clayey marine deposits of the Beaumont Formation on the South Texas Coastal Plain. This map unit makes up about 10 percent of the total area. It is about 54 percent Victoria soils, 16 percent Cranell soils, 15 percent Banquete soils, and 15 percent other soils.

Slopes range from 0 to 3 percent. The soils formed in deltaic and marine clayey sediments derived from the Beaumont Formation.

Victoria soils are very deep, well drained, and have very slow permeability. Typically the surface layer is moderately alkaline clay about 12 inches thick. The subsoil is moderately alkaline clay to 80 inches.

Cranell soils are very deep, well drained, and have slow permeability. Typically the surface layer is moderately alkaline sandy clay loam about 10 inches thick. The subsoil is moderately alkaline clay to 80 inches.

Banquete soils are very deep, moderately well drained, and have very slow permeability. Typically the surface layer is moderately acid clay about 8 inches thick. The upper part of the subsoil is neutral clay to 49 inches. The middle part of the subsoil is slightly alkaline clay to 73 inches. The lower part of the subsoil is moderately alkaline sandy clay loam to 80 inches.

Of minor extent in this map unit are Gullied land-Riverwash miscellaneous areas and the Clareville, Colmena, Edroy, and Gertudis soils. Gullied land-Riverwash miscellaneous areas are along bays and local streams. Clareville and Colmena soils are in low terraces and drains. Edroy soils are in depressions and Gertrudis soils are on knoll positions commonly adjacent to drainage areas.

These soils are used extensively for crop production. Crops include wheat, grain sorghum, and cotton. Other uses include livestock grazing and wildlife habitat.

5. Victine-Aransas-Narta

Poorly drained and somewhat poorly drained, very slowly permeable, very deep soils

This map unit occurs on clayey marine deposits and flood plains of the Beaumont Formation on the South Texas Coastal Plain. This map unit makes up about 9 percent of the total area. It is about 34 percent Victine soils, 27 percent Aransas soils, 13 percent Narta soils, and 26 percent other soils.

Slopes are 0 to 1 percent. The soils formed in clayey fluviomarine sediments derived from the Beaumont Formation (fig. 6).

Victine soils are very deep, somewhat poorly drained, and have very slow permeability. Typically the surface layer is moderately alkaline clay loam about 6 inches thick. The subsoil is moderately alkaline clay to 80 inches.

Aransas soils are very deep, poorly drained, and have very slow permeability. Typically the surface layer is moderately alkaline clay about 22 inches thick. The subsoil is moderately alkaline clay to 80 inches.

Narta soils are very deep, poorly drained, and have very slow permeability. Typically the surface layer is slightly acid loam about 6 inches thick. The upper part of the subsoil is strongly alkaline clay to 49 inches. The lower part of the subsoil is moderately alkaline clay loam to 80 inches.

Of minor extent in this map unit are Dietrich, Edroy, Gertrudis, and Point Isabel soils. Dietrich soils are similar and on slightly higher positions. Edroy soils are in depressions. Gertrudis and Point Isabel soils are on knoll positions commonly adjacent to drainageway areas and on the windward side of depressions.

These soils are used almost exclusively for livestock grazing and wildlife habitat.

6. Potrero-Lopeno-Arenisco

Somewhat poorly, moderately well, and excessively drained, rapidly permeable, very deep soils

This map unit occurs on vegetated dunes and in deflation flats of active and recently active dune complexes of the Sand Sheet on the South Texas Coastal Plain. This map unit makes up about 9 percent of the total area. It is about 24 percent Potrero soils, 23 percent Lopeno soils, 19 percent Arenisco soils, and 34 percent other soils.

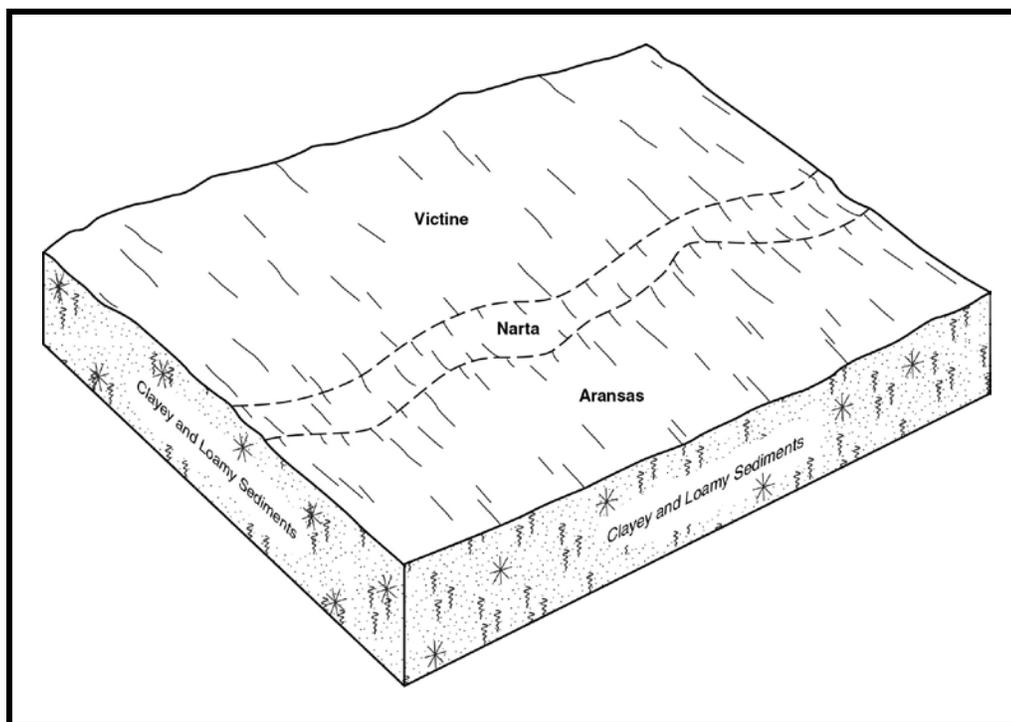


Figure 6.—Patterns of soil and underlying material in the Victine-Aransas-Narta general soil map unit.

Slopes range from 0 to 8 percent. The soils formed in sandy eolian sediments overlying loamy eolian deposits (fig. 7).

Potrero soils are very deep, somewhat poorly drained, and have rapid permeability. Typically the surface layer is slightly acid fine sand about 10 inches thick. The underlying material is slightly acid fine sandy loam to 30 inches. The buried surface layer is slightly acid loamy fine sand to 35 inches. The buried subsoil is slightly acid loamy fine sand and slightly acid fine sandy loam to 80 inches.

Lopeno soils are very deep, moderately well drained, and have rapid permeability. Typically the surface layer is slightly acid fine sand about 10 inches thick. The underlying material is slightly acid fine sandy loam to 43 inches. The buried surface layer is slightly acid loamy fine sand to 49 inches. The buried subsoil is slightly acid loamy fine sand and slightly acid fine sandy loam to 80 inches.

Arenisco soils are very deep, excessively drained, and have rapid permeability. Typically the surface layer is neutral fine sand about 7 inches thick. The underlying layer is neutral fine sand to 80 inches.

Of minor extent in this map unit are the Dune land miscellaneous areas and the Noria, Saucel, Sauz, and Topo soils. These soils are in swales and depressions within the dune complex. The Dune land areas are active dunes.

These soils are used mostly for livestock grazing and wildlife habitat.

7. Arrada-Sauz

Poorly drained and somewhat poorly drained, moderately slowly permeable, very deep soils

This map unit occurs on saline and sodic eolian deposits and washover sediments on wind-tidal flats and depressions on the South Texas Coastal Plain. This map unit

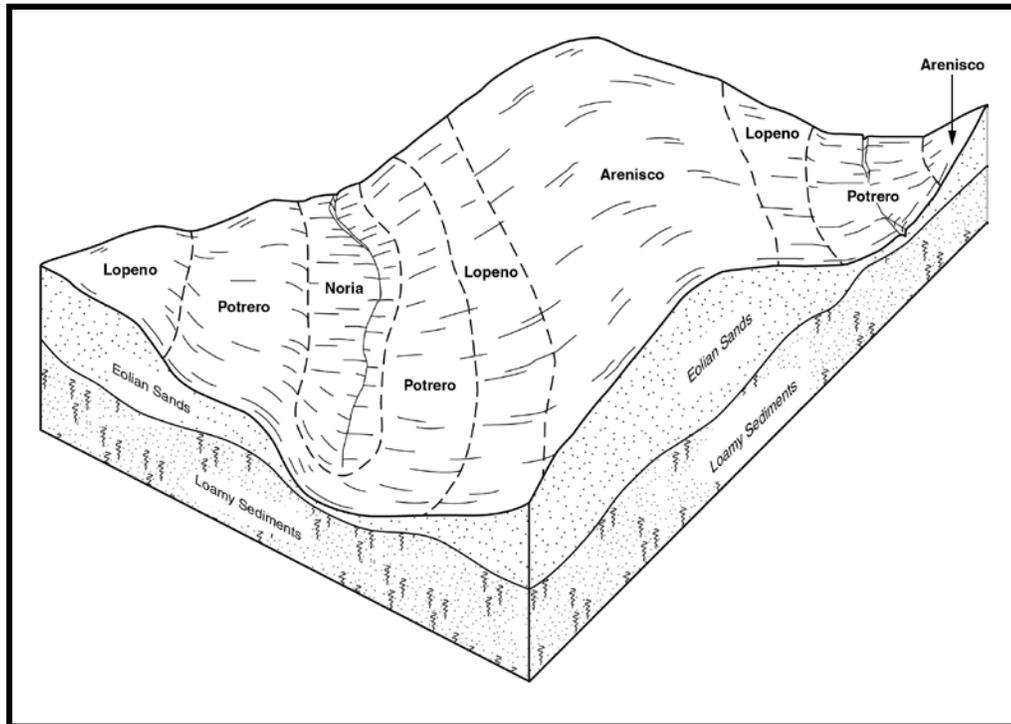


Figure 7.—Patterns of soil and underlying material in the Potrero-Lopeno-Arenisco general soil map unit.

makes up 7 percent of the total area. It is 43 percent Arrada soils, 24 percent Sauz soils, and 34 percent other soils.

Slopes range from 0 to 5 percent. The soils formed in extremely saline loamy alluvial sediments.

Arrada soils are very deep, poorly drained, and have moderately slow permeability. Typically the surface layer is strongly alkaline sandy clay loam about 16 inches thick. The subsoil is strongly alkaline fine sandy loam to 80 inches.

Sauz soils are very deep, somewhat poorly drained, and have moderately slow permeability. Typically the surface layer is neutral loamy fine sand about 12 inches thick. The underlying layer is moderately alkaline fine sandy loam to 80 inches.

Of minor extent in this map unit are Lalinda, Lopeno, Saucel, and Tatton soils. Lalinda and Lopeno soils are on higher landscape positions on the windward side of deflation flats and depressions. Saucel and Tatton soils are in similar to lower positions.

These soils are used mostly for livestock grazing and wildlife habitat.

8. Satatton-Baffin-Tatton

Poorly drained or very poorly drained, moderately slowly and very slowly permeable, very deep soils, and permanently submerged soils

This map unit occurs on saline and sodic eolian deposits and washover sediments on wind-tidal flats and permanently submerged soils on the South Texas Coastal Plain. This map unit makes up about 6 percent of the total area. It is about 42 percent Sattaton soils, 27 percent Baffin soils, 23 percent Tatton soils, and 8 percent other soils.

Slopes are 0 to 1 percent. The soils formed in storm washover and slightly fluid sandy and loamy estuarine sediments.

Sataton soils are very deep, poorly drained, and have very slow permeability. Typically the surface layer is slightly alkaline fine sand about 17 inches thick. The underlying layer is slightly alkaline fine sand to 80 inches.

Baffin soils are very deep, very poorly drained, moderately slowly permeable, and are permanently submerged. Typically the surface layer is slightly alkaline sandy clay loam about 8 inches thick. The underlying layer is slightly alkaline fine sandy loam to 80 inches.

Tatton soils are very deep, very poorly drained, and have very slow permeability. Typically the surface layer is moderately alkaline loamy sand about 4 inches thick. The subsurface layer is slightly alkaline loamy fine sand to 12 inches. The underlying layer is slightly alkaline loamy fine sand to 80 inches.

Of minor extent in this map unit are the Dune land miscellaneous areas and the Arrada, Twinpalms, and Yarborough soils. The Dune land areas are active dunes. Arrada soils are in similar to slightly higher positions. Twinpalms and Yarborough soils are dredged material from submerged areas on higher positions.

These soils are used mostly for wildlife habitat and recreational areas.

9. Mustang-Madre-Sataton

Poorly drained, very slowly permeable, very deep soils

This map unit occurs on saline and sodic eolian deposits and washover sediments on wind-tidal flats and depressions on barrier islands. This map unit makes up about 6 percent of the total area. It is about 35 percent Mustang soils, 20 percent Madre soils, 20 percent Sattaton soils, and 25 percent other soils.

Slopes range from 0 to 8 percent. The soils formed in sandy eolian and storm washover sediments on barrier flats.

Mustang soils are very deep, poorly drained, and have very slow permeability. Typically the surface layer is moderately alkaline fine sand about 19 inches thick. The underlying layer is moderately alkaline fine sand to 80 inches.

Madre soils are very deep, poorly drained, and have very slow permeability. Typically the surface layer is slightly alkaline fine sand about 11 inches thick. The underlying layer is neutral fine sand to 41 inches. The buried surface layer is neutral fine sand to 46 inches. The buried underlying layer is neutral fine sand to 80 inches.

Sataton soils are very deep, poorly drained, and have very slow permeability. Typically the surface layer is slightly alkaline fine sand about 17 inches thick. The underlying layer is slightly alkaline fine sand to 80 inches.

Of minor extent in this map unit are the Dune land miscellaneous areas the Daggerhill, Greenhill, and Tatton soils. The Dune land areas are active dunes. Daggerhill and Greenhill are on higher convex dune positions. Tatton soils are in similar to lower positions.

These soils are used mostly for wildlife habitat and recreation areas.

10. Twinpalms-Yarborough-Baffin

Very poorly drained, poorly drained, and somewhat poorly drained, moderately permeable, moderately slowly permeable, and very slowly permeable, very deep soils, and permanently submerged soils

This map unit occurs on sandy and loamy mounds of dredge material on lagoons and permanently submerged lagoon bottoms. This map unit makes up about 2 percent of the total area. It is about 25 percent Twinpalms soils, 22 percent Yarborough soils, 21 percent Baffin soils, and 32 percent other soils.

Slopes range from 0 to 3 percent. The soils are anthropogenic soils formed from sandy and loamy mounds of dredge material on lagoons and permanently submerged lagoon bottoms.

Twinplams soils are very deep, somewhat poorly drained, and have moderate permeability. Typically the surface layer is slightly alkaline fine sand about 18 inches thick. The upper part of the underlying layer is slightly alkaline fine sandy loam to 30 inches. The lower part of the underlying layer is slightly alkaline gravelly fine sand to 80 inches.

Yarborough soils are very deep, poorly drained, and have very slow permeability. Typically the surface layer is slightly alkaline fine sandy loam about 7 inches thick. The underlying layer is moderately alkaline fine sandy loam to 80 inches.

Baffin soils are very deep, very poorly drained, moderately slow, and are permanently submerged. Typically the surface layer is slightly alkaline sandy clay loam about 8 inches thick. The underlying layer is slightly alkaline fine sandy loam to 80 inches.

Of minor extent in this map unit are areas of Water and the Arrada and Lalinda soils. Arrada soils are in similar positions on the landscape. Lalinda soils are in higher landscape positions on the windward side of deflation flats and depressions. Areas included as Water are channels and areas adjacent to the dredged material along the margins of spoil pile areas.

These soils are used almost exclusively for wildlife habitat and recreational areas.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions can be used for planning and for determining the suitability and potential of a map unit for specific uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Palobia loamy fine sand, 1 to 3 percent slopes, is a phase of the Palobia series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and

relative proportion of the soils or miscellaneous areas are somewhat similar. Nueces-Sarita association, 0 to 5 percent slopes is an example.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Ramita-Bordas complex, 0 to 2 percent slopes, occasionally ponded, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Dune land, 5 to 15 percent slopes, is an example.

Composition estimates of the soils are based on observations, descriptions, and or transects of the map unit. Major land uses of the soils throughout the survey area are used extensively for wildlife habitat and livestock grazing.

Table 7 provides the acreage and proportionate extent of each map unit. Other tables show properties of the soils and the limitations, capabilities, and potentials for many uses.

A complete soil description with range in characteristics is included, in alphabetical order, in the "Soil Series and Morphology" section. For more information about managing the soils, see the section on "Soil Properties", and the section on "Use and Management" which includes subsections on "Crops and Pasture", "Engineering", "Rangeland", "Recreation", and "Wildlife Habitat". The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

AaA—Aransas clay, 0 to 1 percent slopes, frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 0 to 49 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Aransas and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Aransas

Landscape: Coastal plains

Landforms: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Clayey alluvium of Holocene age

Typical Profile

A—0 to 22 inches; moderately alkaline clay

Bkssz—22 to 80 inches; moderately alkaline clay

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 9.0 inches (high)
Natural drainage class: Poorly drained
Runoff: Medium
Flooding frequency: Frequent
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6w
Land capability irrigated: 6w
Ecological site name: Salt Marsh 25-35" PZ
Ecological site number: R150BY652TX
Typical vegetation: Buffalograss, false Rhodes grass, little bluestem, other shrubs, other perennial grasses, switchgrass, vine mesquite, Virginia wildrye, yellow Indiangrass, other perennial forbs, panicum

Use and Management

Major land uses: Used extensively for wildlife habitat and livestock grazing.

AcC—Arenisco fine sand, 1 to 5 percent slopes, very rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 5 to 25 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Arenisco and similar soils: 85 percent
Minor components: 15 percent

Major Component Descriptions

Arenisco

Landscape: Coastal plains
Landforms: Dunes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Eolian sands of Holocene age

Typical Profile

A—0 to 7 inches; neutral fine sand
C—7 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 1 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 3.0 inches (low)
Natural drainage class: Excessively drained
Runoff: Very low
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e
Land capability irrigated: 7e
Ecological site name: Coastal Sand 25-35" PZ
Ecological site number: R150BY648TX
Typical vegetation: Seacoast bluestem, brownseed paspalum, onesided crinkleawn, yellow Indiangrass, live oak, other annual forbs, other perennial forbs, other perennial grasses, switchgrass, Texasgrass, Wright's threeawn, fringleaf paspalum, knotgrass

Use and Management

Major land uses: Used extensively for wildlife habitat and livestock grazing.

AnC—Arenisco-Topo complex, 0 to 5 percent slopes, flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 5 to 33 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Arenisco and similar soils: 70 percent
Topo and similar soils: 20 percent
Minor components: 10 percent

Major Component Descriptions

Arenisco

Landscape: Coastal plains
Landforms: Dunes
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Eolian sands of Holocene age

Typical Profile

A—0 to 7 inches; neutral fine sand
C—7 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 0 to 5 percent
Depth to first restrictive layer: No restrictive layer
Lowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 3.0 inches (low)
Natural drainage class: Excessively drained
Runoff: Very low
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Coastal Sand 25-35" PZ
Ecological site number: R150BY648TX
Typical vegetation: Seacoast bluestem, brownseed paspalum, onesided crinkleawn, yellow Indiangrass, live oak, other annual forbs, other perennial forbs, other perennial grasses, switchgrass, Texasgrass, Wright's threeawn, fringeleaf paspalum, knotgrass

Topo

Landscape: Coastal plains
Landforms: Dune slacks on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

Anz—0 to 10 inches; strongly alkaline fine sandy loam
Bknz—10 to 51 inches; very strongly alkaline fine sandy loam
2Bnzg—51 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 4.0 inches (low)
Natural drainage class: Very poorly drained
Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4w
Land capability irrigated: 4w
Ecological site name: Salty Prairie 26-48" PZ
Ecological site number: R150BY551TX
Typical vegetation: Gulf cordgrass, switchgrass, bushy bluestem, other annual forbs, other perennial forbs

Use and Management

Major land uses: Used extensively for wildlife habitat and livestock grazing.

ArA—Arrada sandy clay loam, 0 to 1 percent slopes, very frequently flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 5 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Arrada and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Arrada

Landscape: Coastal plains, barrier islands
Landforms: Wind-tidal flats
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy eolian deposits and storm washover sediments of Holocene age

Typical Profile

Anzgz—0 to 16 inches; strongly alkaline sandy clay loam
Bknzgz—16 to 54 inches; strongly alkaline fine sandy loam
BCnzgz—54 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: 0 to 10 inches salic
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 0.6 inch (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Very frequent
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8e
Land capability irrigated: 8e
Ecological site name: Wind Tidal Flat 25-35" PZ
Ecological site number: R150BY716TX
Typical vegetation: Unspecified

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

AsC—Arrada-Lalinda complex, 0 to 5 percent slopes, very frequently flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 2 to 26 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Arrada and similar soils: 55 percent
Lalinda and similar soils: 35 percent
Minor components: 10 percent

Major Component Descriptions

Arrada

Landscape: Barrier islands, coastal plains
Landforms: Wind-tidal flats (fig. 8)



Figure 8.—An area of Arrada-Lalinda complex, 0 to 5 percent slopes, very frequently flooded. Arrada soils formed on the low wind-tidal flats areas. Lalinda soils formed on the mounded "clay dune" areas. Spanish dagger is growing on the clay dunes, which developed from sediment blown off the wind-tidal flats.

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy eolian deposits and storm washover sediments of Holocene age

Typical Profile

Anzg—0 to 16 inches; strongly alkaline sandy clay loam

Bknzg—16 to 54 inches; strongly alkaline fine sandy loam

BCnzg—54 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 0 to 10 inches salic

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 0.6 inch (very low)

Natural drainage class: Poorly drained

Runoff: Negligible

Flooding frequency: Very frequent

Ponding frequency: Frequent

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8e

Land capability irrigated: 8e

Ecological site name: Wind Tidal Flat 25-35" PZ
Ecological site number: R150BY716TX

Lalinda

Landscape: Barrier islands, coastal plains
Landforms: Low dunes on blowouts (fig. 8)
Geomorphic positions, three-dimensional: Rise
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy eolian deposits of Holocene age

Typical Profile

A—0 to 10 inches; moderately alkaline fine sandy loam
Bnz—10 to 65 inches; strongly alkaline sandy clay loam
BCnz—65 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 1 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 9.0 inches (high)
Natural drainage class: Well drained
Runoff: Medium
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Coastal Ridge 25-35" PZ
Ecological site number: R150BY647TX
Typical vegetation: Giant sacaton, false Rhodes grass, other shrubs, Arizona cottontop, buffalograss, fall witchgrass, hooded windmillgrass, lovegrass tridens, other perennial forbs, plains bristlegrass

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

BA—Baffin soils, submerged

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: Less than 5 feet to 0 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:

Baffin and similar soils: 95 percent

Minor components: 5 percent

Major Component Descriptions

Baffin

Landscape: Lagoons

Landforms: Washover fan flats on lagoon bottoms, washover fan slopes on lagoon bottoms

Down-slope shape: Linear

Across-slope shape: Linear, concave

Parent material: Sandy lagoonal deposits and/or loamy lagoonal deposits

Typical Profile

Ag1—0 to 2 inches; slightly alkaline sandy clay loam

Ag2—2 to 8 inches; slightly alkaline fine sandy loam

Cg—8 to 80 inches; slightly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 0 to 10 inches salic

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 7.0 inches (moderate)

Natural drainage class: Very poorly drained

Runoff: Negligible

Flooding frequency: None

Ponding frequency: Frequent

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8w

Land capability irrigated: 8w

Ecological site name: Subaqueous Grass Flat

Ecological site number: R150BY728TX

Typical vegetation: Shoalweed, manateeegrass, turtlegrass, widgeongrass

Use and Management

Major land uses: Wildlife habitat and recreation

BbA—Banquete clay, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 150A—Gulf Coast Prairies

Elevation: 16 to 98 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Banquete and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Banquete

Landscape: Coastal plains

Landforms: Flats

Geomorphic positions, three-dimensional: Dip

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Clayey and/or loamy alluvium derived from the Beaumont Formation

Typical Profile

A—0 to 6 inches; moderately acid clay

Bss—6 to 21 inches; neutral clay

Bkss—21 to 44 inches; neutral clay

Bk—44 to 56 inches; slightly alkaline clay

2C—56 to 80 inches; neutral loamy fine sand

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 06 to 0.2 in/hr (slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 8.0 inches (moderate)

Natural drainage class: Moderately well drained

Runoff: Low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2w

Land capability irrigated: 2w

Ecological site name: Blackland 24-44" PZ

Ecological site number: R150AY526TX

Typical vegetation: Other perennial grasses, false Rhodes grass, yellow Indiangrass, plains bristleggrass, buffalograss, Arizona cottontop, pinhole bluestem, pink pappusgrass, sideoats grama, vine mesquite, little bluestem, Texas wintergrass, other perennial forbs, other shrubs

Use and Management

Major land uses: Used extensively for crop production. Other areas are used for livestock grazing, forage production, or wildlife habitat.

**BdA—Barrada clay, 0 to 1 percent slopes, very frequently flooded,
occasionally ponded**

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 5 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Barrada and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Barrada

Landscape: Barrier islands
Landforms: Wind-tidal flats, deflation flats
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Clayey over loamy alluvium and storm washover sediments of
Holocene age

Typical Profile

Azg—0 to 52 inches; strongly alkaline clay
BCzg—52 to 80 inches; strongly alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: 0 to 10 inches salic
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to
06 in/hr (very slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 0.6 inch (very low)
Natural drainage class: Very poorly drained
Runoff: Low
Flooding frequency: Very frequent
Ponding frequency: Occasional
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8s
Land capability irrigated: 8s
Ecological site name: Wind Tidal Flat 25-35" PZ
Ecological site number: R150BY716TX
Typical vegetation: Unspecified

Use and Management

Major land uses: Used extensively for wildlife habitat. The soils do not support vegetation because of high salinity and sodicity.

BE1—Beaches, sandy, very frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 3 feet

Composition

Major components:
Beaches and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Beaches

Landscape: Barrier islands
Landforms: Beaches (fig. 9)
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Beach sand of Holocene age

Typical Profile

C—0 to 7 inches; slightly alkaline stratified fine sand
Cg—7 to 80 inches; slightly alkaline fine sand



Figure 9.—An area of Beaches, sandy, very frequently flooded. These relatively flat and sandy beaches are on the northern part of South Padre Island.

Properties and Qualities

Slope: 0 to 2 percent
Percent of area covered by surface fragments: About 3 percent medium subrounded gravel
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Flooding frequency: Very frequent
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: Not assigned
Ecological site name: Not assigned
Ecological site number: Not assigned

Use and Management

Major land uses: Wildlife habitat and recreation

BE2—Beaches, gravelly, very frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 3 feet

Composition

Major components:
Beaches and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Beaches

Landscape: Barrier islands
Landforms: Beaches (fig. 10)
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Shelly beach sand of Holocene age

Typical Profile

C—0 to 7 inches; slightly alkaline stratified paragravelly fine sand
Cg—7 to 80 inches; slightly alkaline stratified gravel to fine sand

Properties and Qualities

Slope: 0 to 2 percent
Percent of area covered by surface fragments: About 30 percent medium subrounded gravel
Depth to first restrictive layer: No restrictive layer



Figure 10.—An area of Beaches, very gravelly, very frequently flooded. This spot is located near Big Shell Beach near the 25-mile marker on South Padre Island. The loose sand and shell fragment gravels cause very difficult driving conditions on the lower two-thirds of the island.

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 4.8 inches (low)

Flooding frequency: Very frequent

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: Not assigned

Ecological site name: Not assigned

Ecological site number: Not assigned

Use and Management

Major land uses: Wildlife habitat and recreation

BE3—Beaches, bermed, gravelly, very frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 0 to 4 feet

Composition

Major components:

Beaches and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Beaches

Landscape: Barrier islands

Landforms: Beaches

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Shelly beach sand of Holocene age

Typical Profile

C—0 to 7 inches; slightly alkaline stratified paragravelly fine sand

Cg—7 to 80 inches; slightly alkaline stratified gravel to fine sand

Properties and Qualities

Slope: 1 to 3 percent

Percent of area covered by surface fragments: About 25 percent subangular medium and coarse gravel

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 5.0 inches (low)

Flooding frequency: Very frequent

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: Not assigned

Ecological site name: Not assigned

Ecological site number: Not assigned

Use and Management

Major land uses: Wildlife habitat and recreation

BE4—Beaches, bermed, very gravelly, very frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 0 to 4 feet

Composition

Major components:

Beaches and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Beaches

Landscape: Barrier islands

Landforms: Beaches

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Shelly beach sand of Holocene age

Typical Profile

C—0 to 7 inches; slightly alkaline stratified very paragravelly fine sand
Cg—7 to 80 inches; slightly alkaline stratified gravel to fine sand

Properties and Qualities

Slope: 1 to 2 percent
Percent of area covered by surface fragments: About 45 percent subangular medium and coarse gravel
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Flooding frequency: Very frequent
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: Not assigned
Ecological site name: Not assigned
Ecological site number: Not assigned

Use and Management

Major land uses: Wildlife habitat and recreation

BrA—Bordas loamy fine sand, 0 to 1 percent slopes, occasionally ponded

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 5 to 40 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Bordas and similar soils: 95 percent
Minor components: 5 percent

Major Component Descriptions

Bordas

Landscape: Coastal plains
Landforms: Depressions on sand sheets
Down-slope shape: Concave
Across-slope shape: Concave

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 11 inches; moderately acid loamy fine sand
Btg1—11 to 18 inches; neutral sandy clay loam
Btg2—18 to 70 inches; moderately alkaline sandy clay loam
Btg3—70 to 80 inches; strongly alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 9.0 inches (moderate)
Natural drainage class: Very poorly drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: Occasional
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Lakebed 20-35" PZ
Ecological site number: R083EY721TX
Typical vegetation: False Rhodes grass, Arizona cottontop, hooded windmillgrass, other perennial grasses, fall witchgrass, lovegrass tridens, plains bristlegrass, sideoats grama, vine mesquite, Wright's threawn, other shrubs, other perennial forbs, other trees

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

CaA—Calallen sandy clay loam, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 150A—Gulf Coast Prairies
Elevation: 26 to 98 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Calallen and similar soils: 85 percent
Minor components: 15 percent

Major Component Descriptions

Calallen

Landscape: Coastal plains

Landforms: Broad flats

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy fluviomarine deposits of the Beaumont Formation of late Pleistocene age

Typical Profile

A—0 to 8 inches; neutral sandy clay loam

Bt—8 to 38 inches; slightly alkaline sandy clay loam

Btk—38 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 8.0 inches (moderate)

Natural drainage class: Well drained

Runoff: Negligible

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 1

Land capability irrigated: 1

Ecological site name: Clay Loam 25-35" PZ

Ecological site number: R150AY639TX

Typical vegetation: False Rhodes grass, other shrubs, plains bristlegrass, buffalograss, Arizona cottontop, curlymesquite, pinhole bluestem, pink pappusgrass, sideoats grama, vine mesquite, hooded windmillgrass, lovegrass tridens

Use and Management

Major land uses: Used extensively for crop production. Other areas are used for livestock grazing, wildlife habitat, and forage production.

CeA—Carreta sandy clay loam, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 150A—Gulf Coast Prairies

Elevation: 15 to 80 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Carreta and similar soils: 95 percent

Minor components: 5 percent

Major Component Descriptions

Carreta

Landscape: Coastal plains

Landforms: Treads on stream terraces

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Loamy alluvium of late Pliocene age to early Pleistocene age

Typical Profile

Ap—0 to 7 inches; slightly alkaline sandy clay loam

Btnz—7 to 21 inches; slightly alkaline clay

Btknyz—21 to 38 inches; slightly alkaline clay

Btkny—38 to 80 inches; moderately alkaline clay

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 06 to 0.2 in/hr (slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 6.0 inches (moderate)

Natural drainage class: Moderately well drained

Runoff: Medium

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7s

Land capability irrigated: 7s

Ecological site name: Salty Prairie 26-48" PZ

Ecological site number: R150BY551TX

Typical vegetation: Seacoast bluestem, Arizona cottontop, curlymesquite, hooded windmillgrass, pink pappusgrass, plains bristlegrass, tanglehead, brownseed paspalum, silver bluestem, Prosopis juliflora, other annual forbs, other perennial forbs, awnless bushsunflower, condalia, spiny hackberry

Use and Management

Major land uses: Used extensively for livestock grazing, wildlife habitat, and crop production.

ChA—Cayo fine sandy loam, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 10 to 100 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Cayo and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Cayo

Landscape: Coastal plains
Landforms: Interdunes on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 19 inches; moderately alkaline fine sandy loam
Bknz—19 to 41 inches; strongly alkaline fine sandy loam
2Bknz—41 to 60 inches; moderately alkaline fine sandy loam
3Bnz—60 to 80 inches; moderately alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Natural drainage class: Moderately well drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e
Land capability irrigated: 2e
Ecological site name: Sandy Loam 25-35" PZ
Ecological site number: R083EY702TX
Typical vegetation: False Rhodes grass, Arizona cottontop, hooded windmillgrass, lovegrass tridens, plains bristlegrass, curlymesquite, green sprangletop, knotroot bristlegrass, other annual forbs, slim tridens, whitebrush, spiny hackberry

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

CkA—Clareville clay loam, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 83A—Northern Rio Grande Plain

Elevation: 32 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Clareville and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Clareville

Landscape: Coastal plains

Landforms: Draws

Geomorphic positions, two-dimensional: Toeslope

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Loamy alluvium of Quaternary age

Typical Profile

A—0 to 11 inches; neutral clay loam

Bt—11 to 25 inches; neutral clay

Btk—25 to 46 inches; moderately alkaline clay

BCK—46 to 80 inches; moderately alkaline clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 10 inches (high)

Natural drainage class: Well drained

Runoff: Negligible

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e

Land capability irrigated: 2e

Ecological site name: Clay Loam 20-25" PZ

Ecological site number: R083AY382TX

Typical vegetation: Bristlegrass, buffalograss, Arizona cottontop, plains lovegrass, curlymesquite, pink pappusgrass, false Rhodes grass, multiflower false Rhodes

grass, sideoats grama, pinhole bluestem, other perennial forbs, other shrubs, honey mesquite

Use and Management

Major land uses: Used extensively for livestock grazing, wildlife habitat, forage production, and crop production.

CkB—Clareville clay loam, 1 to 3 percent slopes

Setting

Major land resource area: MLRA 83A—Northern Rio Grande Plain

Elevation: 33 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Clareville and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Clareville

Landscape: Coastal plains

Landforms: Draws

Geomorphic positions, two-dimensional: Toeslope

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Loamy alluvium of Quaternary age

Typical Profile

A—0 to 11 inches; neutral clay loam

Bt—11 to 25 inches; neutral clay

Btk—25 to 46 inches; moderately alkaline clay

BCK—46 to 80 inches; moderately alkaline clay loam

Properties and Qualities

Slope: 1 to 3 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 10 inches (high)

Natural drainage class: Well drained

Runoff: Low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e

Land capability irrigated: 2e

Ecological site name: Clay Loam 20-25" PZ

Ecological site number: R083AY382TX

Typical vegetation: Bristlegrass, buffalograss, Arizona cottontop, plains lovegrass, curlymesquite, pink pappusgrass, false Rhodes grass, multiflower false Rhodes grass, sideoats grama, pinhole bluestem, other perennial forbs, other shrubs, honey mesquite

Use and Management

Major land uses: Used for livestock grazing, wildlife habitat, and forage and crop production.

CmA—Colmena fine sandy loam, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 83A—Northern Rio Grande Plain

Elevation: 33 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Colmena and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Colmena

Landscape: Coastal plains

Landforms: Paleoterraces

Geomorphic positions, three-dimensional: Base slope

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Calcareous loamy alluvium

Typical Profile

A—0 to 11 inches; neutral fine sandy loam

Bt—11 to 39 inches; slightly alkaline sandy clay loam

2Btk—39 to 80 inches; slightly alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 10 inches (high)

Natural drainage class: Well drained

Runoff: Low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e

Land capability irrigated: 2e

Ecological site name: Sandy Loam 25-35" PZ

Ecological site number: R083AY407TX

Typical vegetation: Little bluestem, other perennial grasses, Arizona cottontop, false Rhodes grass, pink pappusgrass, plains bristlegrass, other shrubs, other perennial forbs, Texas honey mesquite

Use and Management

Major land uses: Used extensively for crop production. Other areas are used for forage production, livestock grazing, and wildlife habitat.

CmB—Colmena fine sandy loam, 1 to 3 percent slopes

Setting

Major land resource area: MLRA 83A—Northern Rio Grande Plain

Elevation: 32.8 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Colmena and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Colmena

Landscape: Coastal plains

Landforms: Paleoterraces

Geomorphic positions, three-dimensional: Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Calcareous loamy alluvium

Typical Profile

A—0 to 11 inches; neutral fine sandy loam

Bt—11 to 39 inches; slightly alkaline sandy clay loam

2Btk—39 to 80 inches; slightly alkaline sandy clay loam

Properties and Qualities

Slope: 1 to 3 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)

Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 10.0 inches (high)
Natural drainage class: Well drained
Runoff: Low
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e
Land capability irrigated: 2e
Ecological site name: Sandy Loam 25-35" PZ
Ecological site number: R083AY407TX
Typical vegetation: Little bluestem, other perennial grasses, Arizona cottontop, false Rhodes grass, pink pappusgrass, plains bristlegrass, other shrubs, other perennial forbs, Prosopis juliflora

Use and Management

Major land uses: Used extensively for crop production and livestock grazing. Other areas are used for forage production and wildlife habitat.

CnA—Cranell sandy clay loam, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 150A—Gulf Coast Prairies
Elevation: 26.2 to 98 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Cranell and similar soils: 85 percent
Minor components: 15 percent

Major Component Descriptions

Cranell

Landscape: Flat coastal plains
Landforms: Meander scars
Geomorphic positions, three-dimensional: Talf
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Clayey fluviomarine deposits of the Beaumont Formation of late Pleistocene age

Typical Profile

A—0 to 10 inches; moderately alkaline sandy clay loam
Bt—10 to 43 inches; moderately alkaline clay
Bk—43 to 80 inches; moderately alkaline clay

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 06 to 0.2 in/hr (slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 10 inches (high)
Natural drainage class: Well drained
Runoff: High
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 1
Land capability irrigated: 1
Ecological site name: Blackland 24-44" PZ
Ecological site number: R150AY526TX
Typical vegetation: Pinhole bluestem, plains lovegrass, sideoats grama, Texas cupgrass, buffalograss, plains bristlegrass, vine mesquite, curlymesquite, false Rhodes grass, Texas wintergrass, annual grasses, other perennial forbs, other perennial grasses

Use and Management

Major land uses: Used extensively for crop production, wildlife habitat, livestock grazing, and forage production.

CnB—Cranell sandy clay loam, 1 to 3 percent slopes

Setting

Major land resource area: MLRA 150A—Gulf Coast Prairies
Elevation: 26 to 98 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Cranell and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Cranell

Landscape: Flat coastal plains
Landforms: Meander scars
Geomorphic positions, three-dimensional: Talf
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Clayey fluviomarine deposits of the Beaumont Formation of late Pleistocene age

Typical Profile

A—0 to 10 inches; moderately alkaline sandy clay loam

Bt—10 to 43 inches; moderately alkaline clay

Bk—43 to 80 inches; moderately alkaline clay

Properties and Qualities

Slope: 1 to 3 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 06 to 0.2 in/hr (slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 10 inches (high)

Natural drainage class: Well drained

Runoff: High

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e

Land capability irrigated: 2e

Ecological site name: Blackland 24-44" PZ

Ecological site number: R150AY526TX

Typical vegetation: Pinhole bluestem, plains lovegrass, sideoats grama, Texas cupgrass, buffalograss, plains bristlegrass, vine mesquite, curlymesquite, false Rhodes grass, Texas wintergrass, annual grasses, other perennial forbs, other perennial grasses

Use and Management

Major land uses: Used extensively for crop production, wildlife habitat, and livestock grazing.

CrA—Czar fine sandy loam, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 83A—Northern Rio Grande Plain

Elevation: 20 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Czar and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Czar

Landscape: Coastal plains
Landforms: Stream terraces, draws
Geomorphic positions, two-dimensional: Toeslope
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Loamy alluvium of Quaternary age

Typical Profile

A—0 to 7 inches; neutral fine sandy loam
Bt—7 to 61 inches; slightly alkaline sandy clay loam
2Btk—61 to 80 inches; strongly alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 8.0 inches (moderate)
Natural drainage class: Well drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 1
Land capability irrigated: 1
Ecological site name: Sandy Loam 25-35" PZ
Ecological site number: R083AY407TX
Typical vegetation: Arizona cottontop, false Rhodes grass, little bluestem, plains bristlegrass, hooded windmillgrass, Nash windmillgrass, other shrubs, other perennial forbs, fall witchgrass, hairy grama, lovegrass tridens, slim tridens, Wright's threeawn

Use and Management

Major land uses: Used extensively for crop production, livestock grazing, and wildlife habitat. Some areas are used for forage production.

CrB—Czar fine sandy loam, 1 to 3 percent slopes

Setting

Major land resource area: MLRA 83A—Northern Rio Grande Plain
Elevation: 20 to 148 feet
Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Czar and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Czar

Landscape: Coastal plains
Landforms: Stream terraces, draws
Geomorphic positions, two-dimensional: Toeslope
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Loamy alluvium of Quaternary age

Typical Profile

A—0 to 7 inches; neutral fine sandy loam
Bt—7 to 61 inches; slightly alkaline sandy clay loam
2Btk—61 to 80 inches; strongly alkaline sandy clay loam

Properties and Qualities

Slope: 1 to 3 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 8.0 inches (moderate)
Natural drainage class: Well drained
Runoff: Low
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 1
Land capability irrigated: 1
Ecological site name: Sandy Loam 25-35" PZ
Ecological site number: R083AY407TX
Typical vegetation: Arizona cottontop, false Rhodes grass, little bluestem, plains bristlegrass, hooded windmillgrass, Nash windmillgrass, other shrubs, other perennial forbs, fall witchgrass, hairy grama, lovegrass tridens, slim tridens, Wright's threeawn

Use and Management

Major land uses: Used extensively for crop production, livestock grazing and wildlife habitat. Some areas are used for forage production.

CzA—Czar sandy clay loam, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 83A—Northern Rio Grande Plain

Elevation: 20 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Czar and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Czar

Landscape: Coastal plains

Landforms: Stream terraces, draws

Geomorphic positions, two-dimensional: Toeslope

Down-slope shape: Linear

Across-slope shape: Linear, concave

Parent material: Loamy alluvium of Quaternary age

Typical Profile

A—0 to 13 inches; slightly alkaline sandy clay loam

Bt—13 to 49 inches; slightly alkaline sandy clay loam

2Btk—49 to 80 inches; moderately alkaline clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 11 inches (high)

Natural drainage class: Well drained

Runoff: Negligible

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 1

Land capability irrigated: 1

Ecological site name: Clay Loam 20-25" PZ

Ecological site number: R083AY382TX

Typical vegetation: False Rhodes grass, Arizona cottontop, other shrubs, sideoats grama, buffalograss, hooded windmillgrass, lovegrass tridens, pink pappusgrass, plains bristlegrass, vine mesquite

Use and Management

Major land uses: Used extensively for crop production, livestock grazing, and wildlife habitat. Some areas are used for forage production.

DaE—Daggerhill fine sand, 2 to 12 percent slopes, rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 5 to 45 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Daggerhill and similar soils: 86 percent

Minor components: 14 percent

Major Component Descriptions

Daggerhill

Landscape: Barrier islands

Landforms: Foredunes, back-island dune fields (fig. 11)

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Deep sandy eolian sediments of Holocene age

Typical Profile

A—0 to 18 inches; strongly alkaline fine sand

C—18 to 80 inches; strongly alkaline fine sand

Properties and Qualities

Slope: 2 to 12 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 3.0 inches (low)

Natural drainage class: Excessively drained

Runoff: Low

Flooding frequency: Rare

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e

Land capability irrigated: 7e

Ecological site name: Coastal Dune 25-35" PZ

Ecological site number: R150BY714TX



Figure 11.—The foredune ridge in an area of Daggerhill fine sand, 2 to 12 percent slopes, rarely flooded. The foredune ridges stop the migration of small dunes. This aids in building the foredunes, increasing their height. The foredune ridges protect the island from storm surges associated with tropical storms.

Typical vegetation: Bitter panicgrass, other perennial forbs, seaoats, camphorweed, seacoast bluestem, gulfdune paspalum, marshhay cordgrass, thin paspalum, Texas pricklypear

Use and Management

Major land uses: Used extensively for wildlife habitat and recreation.

DdE—Daggerhill-Mustang complex, 0 to 12 percent slopes, occasionally flooded, occasionally ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 5 to 46 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Daggerhill and similar soils: 50 percent

Mustang and similar soils: 41 percent

Minor components: 9 percent

Major Component Descriptions

Daggerhill

Landscape: Barrier islands
Landforms: Back-island dune fields
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Deep sandy eolian sediments of Holocene age

Typical Profile

A—0 to 18 inches; strongly alkaline fine sand
C—18 to 80 inches; strongly alkaline fine sand

Properties and Qualities

Slope: 2 to 12 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 3.0 inches (low)
Natural drainage class: Excessively drained
Runoff: Low
Flooding frequency: Rare
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e
Land capability irrigated: 7e
Ecological site name: Coastal Dune 25-35" PZ
Ecological site number: R150BY714TX
Typical vegetation: Bitter panicgrass, other perennial forbs, seaoats, camphorweed, seacoast bluestem, gulfdune paspalum, marshhay cordgrass, thin paspalum, Texas pricklypear

Mustang

Landforms: Barrier flats
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

A—0 to 11 inches; strongly alkaline fine sand
Cg—11 to 80 inches; strongly alkaline fine sand

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.01 to 0.06 in/hr (very slow)
Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Occasional
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6w
Land capability irrigated: 6w
Ecological site name: Low Coastal Sand 25-35" PZ
Ecological site number: R150BY650TX
Typical vegetation: Marshhay cordgrass, sedge, gulfdune paspalum, other perennial forbs, bushy bluestem, other perennial grasses, Scribner panicum, seacoast bluestem, seashore dropseed

Use and Management

Major land uses: Used extensively for wildlife habitat and recreation.

DeE—Daggerhill-Sataton complex, 0 to 12 percent slopes, frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Landscape: Barrier islands
Elevation: 1 to 39 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Daggerhill and similar soils: 45 percent
Sataton and similar soils: 40 percent
Minor components: 15 percent

Major Component Descriptions

Daggerhill

Landscape: Barrier islands
Landforms: Back-island dune fields
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Deep sandy eolian sediments of Holocene age

Typical Profile

A—0 to 18 inches; strongly alkaline fine sand
C—18 to 80 inches; strongly alkaline fine sand

Properties and Qualities

Slope: 2 to 12 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 3.0 inches (low)
Natural drainage class: Excessively drained
Runoff: Low
Flooding frequency: Rare
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e
Land capability irrigated: 7e
Ecological site name: Coastal Dune 25-35" PZ
Ecological site number: R150BY714TX
Typical vegetation: Bitter panicgrass, other perennial forbs, seaoats, camphorweed, seacoast bluestem, gulfdune paspalum, marshhay cordgrass, thin paspalum, Texas pricklypear

Satation

Landforms: Wind-tidal flats
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

Anz—0 to 17 inches; slightly alkaline fine sand
Cnzg—17 to 80 inches; slightly alkaline fine sand

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: 0 to 10 inches salic
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.01 to 0.06 in/hr (very slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 0.6 inch (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Frequent
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8s
Land capability irrigated: 8s
Ecological site name: Wind Tidal Flat 25-35" PZ
Ecological site number: R150BY716TX
Typical vegetation: Dwarf saltwort

Use and Management

Major land uses: Used extensively for wildlife habitat and recreation.

DfB—Delfina loamy fine sandy, 0 to 2 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 33 to 148 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Delfina and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Delfina

Landscape: Coastal plains
Landforms: Vegetated sand sheets
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Eolian sands over eolian deposits and/or alluvium

Typical Profile

A—0 to 15 inches; neutral loamy fine sand
Bt—15 to 33 inches; slightly alkaline sandy clay loam
2Btk—33 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 2 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 8.0 inches (moderate)
Natural drainage class: Moderately well drained

Runoff: Low
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e
Land capability irrigated: 2e
Ecological site name: Loamy Sand 25-35" PZ
Ecological site number: R083EY705TX
Typical vegetation: Little bluestem, Arizona cottontop, plains bristlegrass, other perennial grasses, hooded windmillgrass, other shrubs, other annual forbs, pink pappusgrass, sideoats grama, tanglehead, fringed leaf paspalum

Use and Management

Major land uses: Used extensively for wildlife habitat, livestock grazing, and crop or forage production.

DnB—Delfina fine sandy loam, 0 to 3 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 33 to 148 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Delfina and similar soils: 95 percent
Minor components: 5 percent

Major Component Descriptions

Delfina

Landscape: Coastal plains
Landforms: Knolls
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Eolian sands over eolian deposits and/or alluvium

Typical Profile

A—0 to 16 inches; neutral fine sandy loam
Bt—16 to 34 inches; slightly alkaline sandy clay loam
2Btk—34 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 3 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 8.0 inches (moderate)
Natural drainage class: Moderately well drained
Runoff: Low
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e
Land capability irrigated: 2e
Ecological site name: Sandy Loam 25-35" PZ
Ecological site number: R083EY702TX
Typical vegetation: Buffalograss, false Rhodes grass, hooded windmillgrass, pink pappusgrass, sideoats grama, plains bristlegrass, plains lovegrass, tanglehead, Arizona cottontop, fringleaf paspalum, other annual forbs, other perennial grasses, other shrubs

Use and Management

Major land uses: Used extensively for crop production, livestock grazing, forage production, and wildlife habitat.

DrA—Dietrich loamy fine sand, 0 to 1 percent slopes, very rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 49 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Dietrich and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Dietrich

Landscape: Coastal plains
Landforms: Strand plains
Geomorphic positions, three-dimensional: Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits of Quaternary age

Typical Profile

A—0 to 12 inches; neutral loamy fine sand
Btnzg—12 to 45 inches; moderately alkaline sandy clay loam
BCKzg—45 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: Natric: 10 to 14 inches
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 06 to 0.2 in/hr (slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 6.0 inches (moderate)
Natural drainage class: Poorly drained
Runoff: Medium
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4s
Land capability irrigated: 4s
Ecological site name: Salty Prairie 26-48" PZ
Ecological site number: R150BY551TX
Typical vegetation: Gulf cordgrass, shoregrass, marshhay cordgrass, other shrubs, other trees, other perennial forbs

Use and Management

Major land uses: Used extensively for wildlife habitat and livestock grazing.

DsB—Dietrich loamy fine sand, 0 to 2 percent slopes, very rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 49 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Dietrich and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Dietrich

Landscape: Coastal plains
Landforms: Vegetated strand plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 33 inches; neutral loamy fine sand
2Bt—33 to 38 inches; neutral sandy clay loam
2Btn—38 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 2 percent
Depth to first restrictive layer: 25 to 37 inches natric
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 7.0 inches (moderate)
Natural drainage class: Moderately well drained
Runoff: High
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e
Land capability irrigated: 4e
Ecological site name: Sandy 25-35" PZ
Ecological site number: R150BY654TX
Typical vegetation: Seacoast bluestem, other perennial grasses, fringleaf paspalum, gulf dune paspalum, hooded windmillgrass, onesided crinkleawn, other perennial forbs, other trees, switchgrass, yellow Indiangrass

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

DTE—Dune land, 0 to 5 percent slopes, occasionally flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 7 to 49 feet

Composition

Major components:
Dune Land and similar soils: 95 percent
Minor components: 5 percent

Major Component Descriptions

Dune Land

Landscape: Barrier islands
Landforms: Back-island dune fields
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Deep sandy eolian sands of Holocene age

Typical Profile

C—0 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 0 to 5 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 2.0 inches (very low)

Flooding frequency: Occasional

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8s

Ecological site number: Not assigned

Typical vegetation: Annual grasses, other annual forbs, other perennial grasses, other perennial forbs

Use and Management

Major land uses: Used extensively for Wildlife habitat

DU—Dune land, 5 to 15 percent slopes, occasionally flooded

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 3 to 49 feet

Composition

Major components:

Dune Land and similar soils: 95 percent

Minor components: 5 percent

Major Component Descriptions

Dune Land

Landscape: Coastal plains

Landforms: Dune fields (fig. 12)

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Deep sandy eolian sediments of Holocene age

Typical Profile

C—0 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 5 to 15 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)



Figure 12.—An area of Dune land, 5 to 15 percent slopes, encroaching on native rangeland. In the foreground, a blowout, shows what the top of a live oak tree will look like after the dune passes. In the extreme background, another area of Dune land, is on the move.

Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Flooding frequency: Occasional
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8s
Ecological site name: Not assigned
Ecological site number: Not assigned
Typical vegetation: Annual grasses, other annual forbs, other perennial grasses, other perennial forbs

Use and Management

Major land uses: Used extensively for wildlife habitat.

DXC—Dune land-Satatton association, 0 to 5 percent slopes, occasionally flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 1 to 49 feet
Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Dune Land and similar soils: 55 percent
Satatton and similar soils: 42 percent
Minor components: 3 percent

Major Component Descriptions

Dune Land

Landscape: Barrier islands, coastal plains
Landforms: Back-island dune fields
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Deep sandy eolian sediments of Holocene age

Typical Profile

C—0 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 1 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Flooding frequency: Occasional
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8s
Ecological site name: Not assigned
Ecological site number: Not assigned
Typical vegetation: Annual grasses, other annual forbs, other perennial grasses, other perennial forbs

Satatton

Landforms: Wind-tidal flats, deflation flats
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Deep sandy eolian sediments of Holocene age

Typical Profile

Anz—0 to 17 inches; slightly alkaline fine sand
Cnzg—17 to 80 inches; slightly alkaline fine sand

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: 0 to 10 inches salic
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 0.6 inch (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Frequent
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8s
Land capability irrigated: 8s
Ecological site name: Wind Tidal Flat 25-35" PZ
Ecological site number: R150BY716TX
Typical vegetation: Dwarf saltwort

Use and Management

Major land uses: Used extensively for wildlife habitat.

EdA—Edroy clay, 0 to 1 percent slopes, occasionally ponded

Setting

Major land resource area: MLRA 150A—Gulf Coast Prairies
Elevation: 33 to 100 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Edroy and similar soils: 95 percent
Minor components: 5 percent

Major Component Descriptions

Edroy

Landscape: Coastal plains
Landforms: Depressions
Geomorphic positions, three-dimensional: Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey fluviomarine deposits in the Beaumont Formation of Pleistocene age

Typical Profile

A—0 to 18 inches; neutral clay
Bss—18 to 57 inches; moderately alkaline clay
Bkss—57 to 70 inches; moderately alkaline clay loam
2Bk—70 to 80 inches; strongly alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 8.0 inches (moderate)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: Occasional
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 5w
Land capability irrigated: 5w
Ecological site name: Lakebed 25-35" PZ
Ecological site number: R150AY641TX
Typical vegetation: Hartweg's paspalum, other perennial grasses, spike lovegrass, white tridens, buffalograss, knotgrass, other perennial forbs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat. Small areas are used for crop production and forage production.

EsA—Estella fine sand, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 10 to 55 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Estella and similar soils: 80 percent
Minor components: 20 percent

Major Component Descriptions

Estella

Landscape: Coastal plains
Landforms: Vegetated sand sheets (fig. 13)



Figure 13.—Gulf cordgrass on an area of Estella fine sand, 0 to 1 percent slopes. These soils formed on low, broad flats on the Sand Sheet geologic formation.

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 17 inches; moderately acid fine sand

E—17 to 57 inches; moderately acid fine sand

2Btg—57 to 80 inches; slightly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 5.0 inches (low)

Natural drainage class: Somewhat poorly drained

Runoff: Negligible

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6e

Land capability irrigated: 4e

Ecological site name: Sandy 20-28" PZ

Ecological site number: R083EY706TX

Typical vegetation: Seacoast bluestem, other perennial grasses, brownseed paspalum, fringed leaf paspalum, gulf dune paspalum, hooded windmillgrass, onesided crinklawn, other shrubs, other perennial forbs, switchgrass, tanglehead, yellow Indiangrass

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

FaC—Falfurrias fine sand, 1 to 5 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 20 to 100 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Falfurrias and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Falfurrias

Landscape: Coastal plains (fig. 14)

Landforms: Vegetated dunes on sand sheets

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Eolian sands of Holocene age

Typical Profile

A—0 to 15 inches; slightly acid fine sand

C—15 to 80 inches; slightly acid fine sand

Properties and Qualities

Slope: 1 to 5 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 3.0 inches (low)

Natural drainage class: Excessively drained

Runoff: Negligible

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches



Figure 14.—Chinoak, with live oak in the background on an area of Falfurrias fine sand, 1 to 5 percent slopes. Falfurrias soils are in the Sand Hills ecological site.

Interpretive Groups

Land capability nonirrigated: 3e

Land capability irrigated: 2e

Ecological site name: Sand Hills 20-28" PZ

Ecological site number: R083EY707TX

Typical vegetation: Seacoast bluestem, brownseed paspalum, onesided crinkleawn, yellow Indiangrass, live oak, other annual forbs, other perennial forbs, other perennial grasses, switchgrass, Texasgrass, Wright's threeawn, fringleaf paspalum, knotgrass

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

FaE—Falfurrias fine sand, 5 to 15 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 20 to 100 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Falfurrias and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Falfurrias

Landscape: Coastal plains

Landforms: Vegetated dunes on sand sheets

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Eolian sands of Holocene age

Typical Profile

A—0 to 15 inches; slightly acid fine sand

C—15 to 80 inches; slightly acid fine sand

Properties and Qualities

Slope: 5 to 15 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 3.0 inches (low)

Natural drainage class: Excessively drained

Runoff: Very low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e

Land capability irrigated: 3e

Ecological site name: Sand Hills 20-28" PZ

Ecological site number: R083EY707TX

Typical vegetation: Seacoast bluestem, brownseed paspalum, onesided crinkleawn, yellow Indiangrass, live oak, other annual forbs, other perennial forbs, other perennial grasses, switchgrass, Texasgrass, Wright's threeawn, fringleaf paspalum, knotgrass

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

FmC—Falfurrias-Atiras-Medanito complex, 0 to 5 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 20 to 59 feet

Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Falfurrias and similar soils: 45 percent
Atiras and similar soils: 30 percent
Medanito and similar soils: 20 percent
Minor components: 5 percent

Major Component Descriptions

Falfurrias

Landscape: Coastal plains
Landforms: Vegetated dunes on sand sheets
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Eolian sands of Holocene age

Typical Profile

A—0 to 15 inches; slightly acid fine sand
C—15 to 80 inches; slightly acid fine sand

Properties and Qualities

Slope: 0 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 3.0 inches (low)
Natural drainage class: Excessively drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 2e
Ecological site name: Sand Hills 20-28" PZ
Ecological site number: R083EY707TX
Typical vegetation: Seacoast bluestem, brownseed paspalum, onesided crinkleawn, yellow Indiangrass, live oak, other annual forbs, other perennial forbs, other perennial grasses, switchgrass, Texasgrass, Wright's threeawn, fringeleaf paspalum, knotgrass

Atiras

Landscape: Coastal plains
Landforms: Longitudinal dunes on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear, convex

Parent material: Eolian sands of Holocene age overlying loamy eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 17 inches; moderately acid fine sand
C—17 to 58 inches; moderately acid fine sand
2Ab—58 to 61 inches; slightly acid fine sand
2Bwb—61 to 80 inches; neutral fine sandy loam

Properties and Qualities

Slope: 1 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 4.0 inches (low)
Natural drainage class: Somewhat excessively drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 2e
Ecological site name: Sandy 20-28" PZ
Ecological site number: R083EY706TX
Typical vegetation: Seacoast bluestem, other perennial grasses, brownseed paspalum, fringleaf paspalum, gulfdune paspalum, hooded windmillgrass, onesided crinkleawn, other shrubs, other perennial forbs, switchgrass, tanglehead, yellow Indiangrass

Medanito

Landscape: Coastal plains
Landforms: Interdunes on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Eolian sands of Holocene age overlying loamy eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 26 inches; slightly acid fine sand
C—26 to 32 inches; moderately acid fine sand
2Ab—32 to 36 inches; slightly acid loamy fine sand
2Bnb1—36 to 42 inches; slightly alkaline loamy fine sand
3Bnb2—42 to 61 inches; moderately alkaline fine sandy loam
3BCn—61 to 80 inches; moderately alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 2 percent
Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 6.0 inches (moderate)
Natural drainage class: Well drained
Runoff: Very low
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 2e
Ecological site name: Sandy 20-28" PZ
Ecological site number: R083EY706TX

Use and Management

Major land uses: Used extensively for wildlife habitat and livestock grazing.

FoD—Falfurrias-Cayo complex, 0 to 8 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 10 to 100 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Falfurrias and similar soils: 60 percent
Cayo and similar soils: 30 percent
Minor components: 10 percent

Major Component Descriptions

Falfurrias

Landscape: Coastal plains
Landforms: Vegetated dunes on sand sheets
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Eolian sands of Holocene age

Typical Profile

A—0 to 15 inches; slightly acid fine sand
C—15 to 80 inches; slightly acid fine sand

Properties and Qualities

Slope: 0 to 8 percent
Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 3.0 inches (low)
Natural drainage class: Excessively drained
Runoff: Very low
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e
Land capability irrigated: 3e
Ecological site name: Sand Hills 20-28" PZ
Ecological site number: R083EY707TX
Typical vegetation: Seacoast bluestem, brownseed paspalum, onesided crinkleawn, yellow Indiangrass, live oak, other annual forbs, other perennial forbs, other perennial grasses, switchgrass, Texasgrass, Wright's threeawn, fringeleaf paspalum, knotgrass

Cayo

Landscape: Coastal plains
Landforms: Interdunes on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 19 inches; moderately alkaline fine sandy loam
Bknz—19 to 41 inches; strongly alkaline fine sandy loam
2Bknz—41 to 60 inches; moderately alkaline fine sandy loam
3Bnz—60 to 80 inches; moderately alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Natural drainage class: Moderately well drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e

Land capability irrigated: 2e

Ecological site name: Sandy Loam 25-35" PZ

Ecological site number: R083EY702TX

Typical vegetation: False Rhodes grass, Arizona cottontop, hooded windmillgrass, lovegrass tridens, plains bristlegrass, curlymesquite, green sprangletop, knotroot bristlegrass, other annual forbs, slim tridens, whitebrush, spiny hackberry

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

FtD—Falfurrias-Topo complex, 0 to 8 percent slopes, rarely flooded, frequently ponded

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 5.0 to 100 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Falfurrias and similar soils: 60 percent

Topo and similar soils: 30 percent

Minor components: 10 percent

Major Component Descriptions

Falfurrias

Landscape: Coastal plains (fig. 15 and fig. 16)

Landforms: Vegetated dunes on sand sheets

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Eolian sands of Holocene age

Typical Profile

A—0 to 15 inches; slightly acid fine sand

C—15 to 80 inches; slightly acid fine sand

Properties and Qualities

Slope: 0 to 8 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 3.0 inches (low)

Natural drainage class: Excessively drained



Figure 15.—This area consists of Topo soils in swales, and Falfurrias soils on low ridges. The Topo soils are ponded and have vegetation such as cordgrass and other wetter species. Live oak trees grow on the higher and better drained Falfurrias soils. It would appear that either drought or live oak decline virus has infested these trees.

Runoff: Very low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e

Land capability irrigated: 3e

Ecological site name: Sand Hills 20-28" PZ

Ecological site number: R083EY707TX

Typical vegetation: Seacoast bluestem, brownseed paspalum, onesided crinkleawn, yellow Indiangrass, live oak, other annual forbs, other perennial forbs, other perennial grasses, switchgrass, Texasgrass, Wright's threeawn, fringeleaf paspalum, knotgrass

Topo

Landscape: Coastal plains (fig. 15 and fig. 16)

Landforms: Dune slacks on sand sheets

Down-slope shape: Linear

Across-slope shape: Linear, concave

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age



Figure 16.—An area of Falfurrias-Topo complex, 0 to 8 percent slopes. The foreground, with cordgrass is the Topo soils. The background with the live oaks is the Falfurrias soils.

Typical Profile

Anz—0 to 10 inches; strongly alkaline fine sandy loam
Bknz—10 to 51 inches; very strongly alkaline fine sandy loam
2Bnzg—51 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 4.0 inches (low)
Natural drainage class: Very poorly drained
Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e
Land capability irrigated: 4e

Ecological site name: Salty Prairie 26-48" PZ

Ecological site number: R150BY551TX

Typical vegetation: Gulf cordgrass, switchgrass, bushy bluestem, other annual forbs, other perennial forbs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

GeB—Gertrudis fine sandy loam, 0 to 3 percent slopes

Setting

Major land resource area: MLRA 83A—Northern Rio Grande Plain

Elevation: 33 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Gertrudis and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Gertrudis

Landscape: Coastal plains

Landforms: Remnant terraces

Down-slope shape: Convex

Across-slope shape: Linear, convex

Parent material: Loamy eolian deposits over calcareous loamy alluvium of Quaternary age

Typical Profile

A—0 to 17 inches; moderately alkaline fine sandy loam

Bk—17 to 41 inches; moderately alkaline sandy clay loam

2Bk—41 to 80 inches; moderately alkaline clay loam

Properties and Qualities

Slope: 0 to 3 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 9.0 inches (moderate)

Natural drainage class: Well drained

Runoff: Low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e

Land capability irrigated: 2e

Ecological site name: Gray Sandy Loam 20-25" PZ

Ecological site number: R083AY388TX

Typical vegetation: False Rhodes grass, hooded windmillgrass, pink pappusgrass, plains bristlegrass, lovegrass tridens, green sprangletop, Arizona cottontop, buffalograss, lime pricklyash, other perennial forbs, plains lovegrass, slim tridens, whitebrush

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat. Other small areas are used for crop or forage production.

GhE—Greenhill fine sand, 2 to 12 percent slopes, rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies (fig. 17)

Elevation: 5 to 30 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Greenhill and similar soils: 85 percent

Minor components: 15 percent



Figure 17.—An area of Greenhill fine sand, 2 to 12 percent slopes, rarely flooded. These soils form on the foredune ridges and back-island dune fields. The taller grass is sea oats uniola. Greenhill soils are in the Coastal Dune ecological site.

Major Component Descriptions

Greenhill

Landscape: Barrier islands

Landforms: Back-island dune fields, foredunes

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Deep sandy eolian sediments of Holocene age

Typical Profile

A—0 to 28 inches; moderately acid fine sand

C—28 to 80 inches; moderately acid fine sand

Properties and Qualities

Slope: 2 to 12 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 3.0 inches (low)

Natural drainage class: Excessively drained

Runoff: Very low

Flooding frequency: Rare

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e

Land capability irrigated: 7e

Ecological site name: Coastal Dune 25-35" PZ

Ecological site number: R150BY714TX

Typical vegetation: Bitter panicgrass, other perennial forbs, seaoats, camphorweed, seacoast bluestem, gulfdune paspalum, marshhay cordgrass, thin paspalum, Texas pricklypear

Use and Management

Major land uses: Used extensively for wildlife habitat.

GmE—Greenhill-Mustang complex, 0 to 12 percent slopes, occasionally flooded, occasionally ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 0 to 30 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Greenhill and similar soils: 50 percent

Mustang and similar soils: 41 percent

Minor components: 9 percent

Major Component Descriptions

Greenhill

Landscape: Barrier islands

Landforms: Back-island dune fields

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Deep sandy eolian sediments of Holocene age

Typical Profile

A—0 to 21 inches; moderately acid fine sand

C—21 to 80 inches; moderately acid fine sand

Properties and Qualities

Slope: 2 to 12 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 3.0 inches (low)

Natural drainage class: Excessively drained

Runoff: Very low

Flooding frequency: Rare

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e

Land capability irrigated: 7e

Ecological site name: Coastal Dune 25-35" PZ

Ecological site number: R150BY714TX

Typical vegetation: Bitter panicgrass, other perennial forbs, sea oats, camphorweed, seacoast bluestem, gulf dune paspalum, marshhay cordgrass, thin paspalum, Texas pricklypear

Mustang

Landscape: Barrier islands

Landforms: Barrier flats

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

A—0 to 19 inches; neutral fine sand
Cg—19 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Occasional
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6w
Land capability irrigated: 6w
Ecological site name: Low Coastal Sand 25-35" PZ
Ecological site number: R150BY650TX
Typical vegetation: Marshhay cordgrass, sedge, gulf dune paspalum, other perennial forbs, bushy bluestem, other perennial grasses, Scribner panicum, seacoast bluestem, seashore dropseed

Use and Management

Major land uses: Used extensively for wildlife habitat.

GRE—Gullied land-Riverwash complex

Setting

Major land resource area: MLRA 150A—Gulf Coast Prairies
Elevation: 10 to 150 feet
Mean annual precipitation: 10 to 46 inches
Mean annual air temperature: 57 to 73 degrees F
Frost-free period: 220 to 320 days

Composition

Riverwash and similar soils: 55 percent
Gullied Land and similar soils: 35 percent
Minor components: 10 percent

Major Component Descriptions

Gullied Land

Landscape: Coastal plains
Parent material: Loamy and clayey alluvial sediments

Properties and Qualities

Slope: 0 to 12 percent
Depth to first restrictive layer: Not present
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Natural drainage: class: Well drained
Flooding frequency: None
Ponding frequency: Not ponded
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e
Ecological site name: Not specified
Ecological site number: Not specified

Riverwash

Landscape: Coastal plains
Landscape: Flood plains
Parent material: Loamy and clayey alluvial sediments of Holocene age

Properties and Qualities

Slope: 0 to 2 percent
Depth to first restrictive layer: Not present
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 0.0 (very low)
Flooding frequency: Frequent
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: Not assigned
Ecological site name: Not assigned
Ecological site number: Not assigned

1cA—Incell clay, 0 to 1 slopes, very rarely flooded, frequently ponded

Setting

Major land resource area: MLRA 83D—Lower Rio Grande Plain
Elevation: 10 to 33 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:

Incell and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Incell

Landscape: Coastal plains

Landforms: Depressions

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Loamy alluvium of Quaternary age

Typical Profile

A—0 to 25 inches; neutral clay

Bkg—25 to 60 inches; moderately alkaline sandy clay loam

Bck—60 to 80 inches; strongly alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.001 to 0.06 in/hr (very slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 11 inches (high)

Natural drainage class: Very poorly drained

Runoff: Negligible

Flooding frequency: Very rare

Ponding frequency: Frequent

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3w

Land capability irrigated: 3w

Ecological site name: Fresh Marsh

Ecological site number: R083DY712TX

Typical vegetation: Marshhay cordgrass, sedge, big cordgrass, cattail, Hartweg's paspalum, other perennial forbs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

LaC—Lalinda fine sandy loam, 1 to 5 percent slopes, very rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 5 to 50 feet

Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Lalinda and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Lalinda

Landscape: Coastal plains
Landforms: Blowouts
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy eolian deposits of Holocene age

Typical Profile

A—0 to 10 inches; moderately alkaline fine sandy loam
Bnz—10 to 65 inches; strongly alkaline sandy clay loam
BCnz—65 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 1 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 9.0 inches (high)
Natural drainage class: Well drained
Runoff: Medium
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Coastal Ridge 25-35" PZ
Ecological site number: R150BY647TX
Typical vegetation: Giant sacaton, false Rhodes grass, other shrubs, Arizona cottontop, buffalograss, fall witchgrass, hooded windmillgrass, lovegrass tridens, other perennial forbs, plains bristlegass

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

LpC—Lopeno-Potrero-Arenisco complex, 0 to 5 percent slopes, very rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 5 to 33 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Lopeno and similar soils: 40 percent

Potrero and similar soils: 28 percent

Arenisco and similar soils: 22 percent

Minor components: 10 percent

Major Component Descriptions

Lopeno

Landscape: Coastal plains

Landforms: Low vegetated dunes on deflation flats on sand sheets

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Eolian sands of Holocene age overlying loamy eolian deposits of Quaternary age

Typical Profile

A—0 to 5 inches; slightly acid fine sand

C—5 to 41 inches; slightly acid fine sand

Agb—65 to 69 inches; slightly acid fine sand

Cg—41 to 65 inches; slightly acid fine sand

Bgb—69 to 80 inches; neutral loamy fine sand

Properties and Qualities

Slope: 1 to 5 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 8.0 inches (moderate)

Natural drainage class: Moderately well drained

Runoff: Very low

Flooding frequency: Very rare

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e

Land capability irrigated: 3e

Ecological site name: Low Coastal Sand 25-35" PZ

Ecological site number: R150BY650TX

Typical vegetation: Seacoast bluestem, gulfdune paspalum, balsamscale, other annual forbs, other perennial forbs

Potrero

Landscape: Coastal plains

Landforms: Deflation flats on sand sheets

Down-slope shape: Linear

Across-slope shape: Linear, convex

Parent material: Eolian sand of Holocene age overlying loamy eolian deposits of Quaternary age

Typical Profile

A—0 to 10 inches; slightly acid fine sand

C—10 to 30 inches; slightly acid fine sand

Agb—30 to 35 inches; slightly acid loamy fine sand

Bgb1—35 to 42 inches; neutral loamy fine sand

Bgb2—42 to 80 inches; neutral fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 7.0 inches (moderate)

Natural drainage class: Somewhat poorly drained

Runoff: Negligible

Flooding frequency: Very rare

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e

Land capability irrigated: 3e

Ecological site name: Low Coastal Sand 25-35" PZ

Ecological site number: R150BY650TX

Typical vegetation: Gulfdune paspalum, broomsedge bluestem, seacoast bluestem, other annual forbs, other perennial forbs

Arenisco

Landscape: Coastal plains

Landforms: Dunes

Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Eolian sands of Holocene age

Typical Profile

A—0 to 7 inches; neutral fine sand
C—7 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 0 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 3.0 inches (low)
Natural drainage class: Excessively drained
Runoff: Very low
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Coastal Sand 25-35" PZ
Ecological site number: R150BY648TX
Typical vegetation: Seacoast bluestem, brownseed paspalum, onesided crinkleawn, yellow Indiangrass, live oak, other annual forbs, other perennial forbs, other perennial grasses, switchgrass, Texasgrass, Wright's threeawn, fringleaf paspalum, knotgrass

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

LsC—Lopeno-Saucel complex, 0 to 5 percent slopes, rarely flooded, occasionally ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 1 to 33 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Lopeno and similar soils: 55 percent
Saucel and similar soils: 40 percent
Minor components: 5 percent

Major Component Descriptions

Lopeno

Landscape: Coastal plains

Landforms: Low vegetated dunes on deflation flats on sand sheets

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying loamy eolian deposits of Quaternary age

Typical Profile

A—0 to 5 inches; slightly acid fine sand

C—5 to 41 inches; slightly acid fine sand

Cg—41 to 65 inches; slightly acid fine sand

Agb—65 to 69 inches; slightly acid fine sand

Bgb—69 to 80 inches; neutral loamy fine sand

Properties and Qualities

Slope: 1 to 5 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 8.0 inches (moderate)

Natural drainage class: Moderately well drained

Runoff: Very low

Flooding frequency: Very rare

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e

Land capability irrigated: 3e

Ecological site name: Low Coastal Sand 25-35" PZ

Ecological site number: R150BY650TX

Typical vegetation: Seacoast bluestem, gulfdune paspalum, balsamscale, other annual forbs, other perennial forbs

Saucel

Landscape: Coastal plains

Landforms: Blowouts on sand sheets

Geomorphic positions, three-dimensional: Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy eolian deposits and/or alluvium of Quaternary age

Typical Profile

Az—0 to 4 inches; strongly alkaline fine sandy loam

Bz—4 to 44 inches; strongly alkaline fine sandy loam

Bzg—44 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: 0 to 10 inches salic
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: Occasional
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e
Land capability irrigated: 7e
Ecological site name: Salt Flat 25-35" PZ
Ecological site number: R150BY651TX
Typical vegetation: Inland saltgrass, bushy seaoxeye, other perennial forbs, Gulf cordgrass, other annual forbs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

LzC—Lopeno-Sauz complex, 0 to 5 percent slopes, flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 1 to 33 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Lopeno and similar soils: 56 percent
Sauz and similar soils: 35 percent
Minor components: 9 percent

Major Component Descriptions

Lopeno

Landscape: Coastal plains
Landforms: Low vegetated dunes on deflation flats on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear, convex
Parent material: Eolian sands of Holocene age overlying loamy eolian deposits of Quaternary age

Typical Profile

A—0 to 5 inches; slightly acid fine sand
C—5 to 41 inches; slightly acid fine sand
Cg—41 to 65 inches; slightly acid fine sand
Agb—65 to 69 inches; slightly acid fine sand
Bgb—69 to 80 inches; neutral loamy fine sand

Properties and Qualities

Slope: 1 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 8.0 inches (moderate)
Natural drainage class: Moderately well drained
Runoff: Very low
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Low Coastal Sand 25-35" PZ
Ecological site number: R150BY650TX
Typical vegetation: Seacoast bluestem, gulfdune paspalum, balsamscale, other annual forbs, other perennial forbs

Sauz

Landscape: Coastal plains
Landforms: Vegetated sand sheets
Geomorphic positions, three-dimensional: Rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 7 inches; neutral loamy fine sand
Btnz1—7 to 13 inches; moderately alkaline fine sandy loam
Btnz2—13 to 24 inches; moderately alkaline fine sandy loam
Btknz—24 to 55 inches; moderately alkaline fine sandy loam
Cnzg—55 to 80 inches; moderately alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: 3 to 14 inches natric
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Natural drainage class: Somewhat poorly drained
Runoff: High
Flooding frequency: Rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e
Land capability irrigated: 3e
Ecological site name: Sandy Flat 22-35" PZ
Ecological site number: R150BY708TX
Typical vegetation: Gulf cordgrass, other perennial grasses, seacoast bluestem, switchgrass, alkali sacaton, broomsedge bluestem, bushy bluestem, other perennial forbs, other shrubs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

MaA—Madre-Malaquite complex, 0 to 1 percent slopes, occasionally flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 5 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Madre and similar soils: 45 percent
Malaquite and similar soils: 39 percent
Minor components: 16 percent

Major Component Descriptions

Madre

Landscape: Barrier islands
Landforms: Nearly level barrier flats
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

An—0 to 11 inches; slightly alkaline fine sand
Cng—11 to 41 inches; neutral fine sand
Anb—41 to 46 inches; neutral fine sand
Cngb—46 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.001 to 0.06 in/hr (very slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Occasional
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6w
Land capability irrigated: 6w
Ecological site name: Firm Brackish Marsh 25-35" PZ
Ecological site number: R150BY715TX
Typical vegetation: Marshhay cordgrass, other perennial forbs, bushy seaoxeye, inland saltgrass, other perennial grasses, seashore dropseed, shoregrass

Malaquite

Landscape: Barrier islands (fig. 18)
Landforms: Shallow depressions on barrier flats
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

Anz—0 to 5 inches; moderately alkaline fine sand
Cnzg—5 to 21 inches; strongly alkaline fine sand
Anzb—21 to 27 inches; moderately alkaline fine sand
Cnzgb—27 to 80 inches; moderately alkaline fine sand

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: 0 to 39 inches salic
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.01 to 0.06 in/hr (very slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Occasional
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches



Figure 18.—An area of Malaquite fine sand, in an area of Madre-Malaquite complex, 0 to 1 percent slopes, occasionally flooded. This soil supports salt-tolerant plants. This map unit is in the Salt Flat ecological site.

Interpretive Groups

Land capability nonirrigated: 8s

Land capability irrigated: 8s

Ecological site name: Salt Flat 25-35" PZ

Ecological site number: R150BY651TX

Typical vegetation: Shoregrass, inland saltgrass, bushy seaoxeye, other perennial forbs, other perennial grasses, pickleweed, seashore dropseed, sedge, turtleweed, wolfberry

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

MnB—Madre-Panam complex, 0 to 2 percent slopes, occasionally flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 0 to 10 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Madre and similar soils: 48 percent

Panam and similar soils: 43 percent

Minor components: 9 percent

Major Component Descriptions

Madre

Landscape: Barrier islands

Landforms: Nearly level barrier flats

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

An—0 to 8 inches; slightly alkaline fine sand

Cng—8 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 2.0 inches (very low)

Natural drainage class: Poorly drained

Runoff: Negligible

Flooding frequency: Occasional

Ponding frequency: Frequent

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6w

Land capability irrigated: 6w

Ecological site name: Firm Brackish Marsh 25-35" PZ

Ecological site number: R150BY715TX

Typical vegetation: Marshhay cordgrass, other perennial forbs, bushy seaoxeye, inland saltgrass, other perennial grasses, seashore dropseed, shoregrass

Panam

Landscape: Barrier islands

Landforms: Low dunes on barrier flats

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

A—0 to 23 inches; slightly alkaline fine sand

C—23 to 38 inches; slightly alkaline fine sand

Cg—38 to 80 inches; slightly alkaline fine sand

Properties and Qualities

Slope: 0 to 2 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Natural drainage class: Somewhat poorly drained
Runoff: Negligible
Flooding frequency: Occasional
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2w
Land capability irrigated: 2w
Ecological site name: Coastal Sand 25-35" PZ
Ecological site number: R150BY648TX
Typical vegetation: Seacoast bluestem, other perennial forbs, gulfdune paspalum, broomsedge bluestem, brownseed paspalum, False Indigo, marshhay cordgrass, other perennial grasses, partridge pea, Scribner panicum

Use and Management

Major land uses: Used extensively for wildlife habitat.

MoA—Montealto clay, 0 to 1 percent slopes, very rarely flooded, occasionally ponded

Setting

Major land resource area: MLRA 83D—Lower Rio Grande Plain
Elevation: 10 to 33 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Montealto and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Montealto

Landscape: Coastal plains
Landforms: Blowouts
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey over loamy alluvium

Typical Profile

A—0 to 18 inches; slightly acid clay
Bkss—18 to 47 inches; strongly alkaline clay
BC—47 to 80 inches; strongly alkaline clay

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 8.0 inches (moderate)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Very rare
Ponding frequency: Occasional
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4w
Land capability irrigated: 4w
Ecological site name: Lakebed 20-35" PZ
Ecological site number: R083DY504TX
Typical vegetation: Vine mesquite, pink pappusgrass, alkali sacaton, buffalograss, other perennial grasses, plains bristlegrass, tobosa, other perennial forbs, other shrubs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

MsA—Mustang fine sand, 0 to 1 percent slopes, occasionally flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 5 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Mustang and similar soils: 85 percent
Minor components: 15 percent

Major Component Descriptions

Mustang

Landscape: Barrier islands (fig.19)
Landforms: Shallow depressions on barrier flats
Geomorphic positions, three-dimensional: Dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy eolian and storm washover sediments of Holocene age



Figure 19.—An area of Mustang fine sand, 0 to 1 percent slopes, occasionally flooded. These soils form on the barrier flat positions on the island, and have ponded water on the surface for long periods during the year. Mustang soils are in the Low Coastal Sand ecological site.

Typical Profile

A—0 to 19 inches; moderately alkaline fine sand
Cg—19 to 80 inches; moderately alkaline fine sand

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Occasional
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 5e
Land capability irrigated: 4e
Ecological site name: Low Coastal Sand 25-35" PZ
Ecological site number: R150BY650TX
Typical vegetation: Marshhay cordgrass, sedge, gulfdune paspalum, other perennial forbs, bushy bluestem, other perennial grasses, Scribner panicum, seacoast bluestem, seashore dropseed

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

MtB—Mustang-Padre complex, 0 to 2 percent slopes, occasionally flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 0 to 10 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Mustang and similar soils: 49 percent

Padre and similar soils: 42 percent

Minor components: 9 percent

Major Component Descriptions

Mustang

Landscape: Barrier islands

Landforms: Barrier flats

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

A—0 to 19 inches; neutral fine sand

Cg—19 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 2.0 inches (very low)

Natural drainage class: Poorly drained

Runoff: Negligible

Flooding frequency: Occasional

Ponding frequency: Frequent

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6w

Land capability irrigated: 6w

Ecological site name: Low Coastal Sand 25-35" PZ

Ecological site number: R150BY650TX

Typical vegetation: Marshhay cordgrass, sedge, gulfdune paspalum, other perennial forbs, bushy bluestem, other perennial grasses, Scribner panicum, seacoast bluestem, seashore dropseed

Padre

Landscape: Barrier islands

Landforms: Low dunes on barrier flats

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

A—0 to 19 inches; moderately acid fine sand

C—19 to 28 inches; moderately acid fine sand

Cg—28 to 80 inches; moderately acid fine sand

Properties and Qualities

Slope: 1 to 2 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.001 to 0.06 in/hr (very slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 5.0 inches (low)

Natural drainage class: Somewhat poorly drained

Runoff: Very low

Flooding frequency: Occasional

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e

Land capability irrigated: 7e

Ecological site name: Coastal Sand 25-35" PZ

Ecological site number: R150BY648TX

Typical vegetation: Seacoast bluestem, other perennial forbs, gulfdune paspalum, broomsedge bluestem, brownseed paspalum, False Indigo, marshhay cordgrass, other perennial grasses, partridge pea, Scribner panicum

Use and Management

Major land uses: Used extensively for wildlife habitat.

MuB—Mustang-Panam complex, 0 to 2 percent slopes, occasionally flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 0 to 10 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Mustang and similar soils: 50 percent

Panam and similar soils: 40 percent

Minor components: 10 percent

Major Component Descriptions

Mustang

Landscape: Barrier islands

Landforms: Barrier flats

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

A—0 to 11 inches; strongly alkaline fine sand

Cg—11 to 80 inches; strongly alkaline fine sand

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 2.0 inches (very low)

Natural drainage class: Poorly drained

Runoff: Negligible

Flooding frequency: Occasional

Ponding frequency: Frequent

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6w

Land capability irrigated: 6w

Ecological site name: Low Coastal Sand 25-35" PZ

Ecological site number: R150BY650TX

Typical vegetation: Marshhay cordgrass, sedge, gulfdune paspalum, other perennial forbs, bushy bluestem, other perennial grasses, Scribner panicum, seacoast bluestem, seashore dropseed

Panam

Landscape: Barrier islands

Landforms: Low dunes on barrier flats

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

A—0 to 9 inches; slightly alkaline fine sand

C—9 to 36 inches; strongly alkaline fine sand

Cg—36 to 80 inches; strongly alkaline fine sand

Properties and Qualities

Slope: 0 to 2 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Natural drainage class: Somewhat poorly drained
Runoff: Negligible
Flooding frequency: Occasional
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e
Land capability irrigated: 7e
Ecological site name: Coastal Sand 25-35" PZ
Ecological site number: R150BY648TX
Typical vegetation: Seacoast bluestem, other perennial forbs, gulfdune paspalum, broomsedge bluestem, brownseed paspalum, False Indigo, marshhay cordgrass, other perennial grasses, partridge pea, Scribner panicum

Use and Management

Major land uses: Used extensively for wildlife habitat.

NaA—Narta loam, 0 to 1 percent slopes, rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 7 to 49 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Narta and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Narta

Landscape: Low coastal plains
Landforms: Plains, flats
Geomorphic positions, three-dimensional: Dip
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey fluviomarine deposits of late Pleistocene age

Typical Profile

A—0 to 6 inches; slightly acid loam
Btn—6 to 20 inches; strongly alkaline clay loam
Btkn1—20 to 49 inches; strongly alkaline clay loam
Btkn2—49 to 80 inches; moderately alkaline clay loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.001 to 0.06 in/hr (very slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 1.0 inch (very low)
Natural drainage class: Poorly drained
Runoff: Medium
Flooding frequency: Rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6s
Land capability irrigated: 6s
Ecological site name: Salty Prairie 26-48" PZ
Ecological site number: R150BY551TX
Typical vegetation: Gulf cordgrass, Hartweg's paspalum, inland saltgrass, little bluestem, marshhay cordgrass, switchgrass, other shrubs, other perennial forbs

Use and Management

Major land uses: Used extensively for wildlife habitat and livestock grazing.

NeA—Novillo peat, 0 to 1 percent slopes, rarely flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 3 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Novillo and similar soils: 88 percent
Minor components: 12 percent

Major Component Descriptions

Novillo

Landscape: Barrier islands (fig. 20)

Landforms: Elongated swales on barrier flats

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

Oi—0 to 2 inches; slightly acid slightly decomposed plant material

A—2 to 12 inches; slightly acid fine sand

Cg—12 to 80 inches; slightly acid fine sand

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 3.0 inches (very low)

Natural drainage class: Very poorly drained

Runoff: Negligible

Flooding frequency: Rare

Ponding frequency: Frequent

Depth to seasonal water table: Present within 80 inches



Figure 20.—An area of Novillo peat, 0 to 1 percent slopes, ponded. The soil formed in a fresh marsh environment. The marsh runs along the central portion of the northern third of South Padre Island.

Interpretive Groups

Land capability nonirrigated: 6w

Land capability irrigated: 6w

Ecological site name: Coastal Swale 25-35" PZ

Ecological site number: R150BY713TX

Typical vegetation: Cattail, Olney bulrush, sedge, spikerush, bushy bluestem, hemp sesbania, largeleaf pennywort, marshhay cordgrass

Use and Management

Major land uses: Used extensively for wildlife habitat.

NfC—Nueces fine sand, 0 to 5 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 16 to 131 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Nueces and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Nueces

Landscape: Coastal plains (fig. 21)

Landforms: Vegetated sand sheets

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 33 inches; neutral fine sand

2Bt1—33 to 44 inches; neutral sandy clay loam

2Bt2—44 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 5 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 7.0 inches (moderate)

Natural drainage class: Moderately well drained

Runoff: Low



Figure 21.—An area of switchgrass on Nueces fine sand, 0 to 5 percent slopes. This area of rangeland is in excellent condition due to deferred grazing and lower stocking rates.

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e

Land capability irrigated: 4e

Ecological site name: Sandy 20-28" PZ

Ecological site number: R083EY706TX

Typical vegetation: Seacoast bluestem, other perennial grasses, fringed leaf paspalum, gulfdune paspalum, hooded windmillgrass, onesided crinkleawn, other perennial forbs, other trees, switchgrass, yellow Indiangrass

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

NsC—Nueces-Sarita association, 0 to 5 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 16 to 131 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Nueces and similar soils: 65 percent

Sarita and similar soils: 25 percent

Minor components: 10 percent

Major Component Descriptions

Nueces

Landscape: Coastal plains

Landforms: Vegetated sand sheets

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 33 inches; neutral fine sand

2Bt1—33 to 44 inches; neutral sandy clay loam

2Bt2—44 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 3 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 7.0 inches (moderate)

Natural drainage class: Moderately well drained

Runoff: Low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e

Land capability irrigated: 4e

Ecological site name: Sandy 20-28" PZ

Ecological site number: R083EY706TX

Typical vegetation: Seacoast bluestem, other perennial grasses, fringeleaf paspalum, gulfdune paspalum, hooded windmillgrass, onesided crinkleawn, other perennial forbs, other trees, switchgrass, yellow Indiangrass

Sarita

Landscape: Coastal plains

Landforms: Low vegetated dunes on sand sheets

Down-slope shape: Linear

Across-slope shape: Linear, convex

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 64 inches; slightly acid fine sand

2Bt—64 to 80 inches; slightly acid fine sandy loam

Properties and Qualities

Slope: 0 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 4.0 inches (low)
Natural drainage class: Well drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6e
Land capability irrigated: 4e
Ecological site name: Sandy 20-28" PZ
Ecological site number: R083EY706TX
Typical vegetation: Seacoast bluestem, other perennial grasses, brownseed paspalum, fringleaf paspalum, gulfdune paspalum, hooded windmillgrass, onesided crinkleawn, other shrubs, other perennial forbs, switchgrass, tanglehead, yellow Indiangrass

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

OfA—Orelia fine sandy loam, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 150A—Gulf Coast Prairies
Elevation: 33 to 148 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Orelia and similar soils: 95 percent
Minor components: 5 percent

Major Component Descriptions

Orelia

Landscape: Flat coastal plains
Landforms: Flats
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits of early Pleistocene age

Typical Profile

A—0 to 10 inches; slightly acid fine sandy loam
Bt1—10 to 15 inches; slightly acid sandy clay loam
Bt2—15 to 30 inches; neutral sandy clay loam
Btk—30 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 06 to 0.2 in/hr (slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 8.0 inches (moderate)
Natural drainage class: Well drained
Runoff: Medium
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2s
Land capability irrigated: 2s
Ecological site name: Claypan Prairie 28-44" PZ
Ecological site number: R150AY528TX
Typical vegetation: False Rhodes grass, other shrubs, plains bristlegrass, buffalograss, Arizona cottontop, curlymesquite, pinhole bluestem, pink pappusgrass, sideoats grama, vine mesquite, hooded windmillgrass, lovegrass tridens

Use and Management

Major land uses: Used extensively for crop production, wildlife habitat, and livestock grazing.

PaA—Padrones fine sand, 0 to 3 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 30 to 100 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Padrones and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Padrones

Landscape: Coastal plains
Landforms: Vegetated sand sheets
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 26 inches; moderately acid fine sand
2Btn—26 to 80 inches; neutral sandy clay loam

Properties and Qualities

Slope: 0 to 3 percent
Depth to first restrictive layer: 20 to 39 inches natric
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Natural drainage class: Moderately well drained
Runoff: Low
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e
Land capability irrigated: 2e
Ecological site name: Sandy 20-28" PZ
Ecological site number: R083EY706TX
Typical vegetation: Seacoast bluestem, brownseed paspalum, other perennial grasses, balsamscare, fringeleaf paspalum, hooded windmillgrass, onesided crinkleawn, other perennial forbs, other trees, switchgrass

Use and Management

Major land uses: Used extensively for rangeland and wildlife habitat.

PbA—Palobia loamy fine sand, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 20 to 148 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:

Palobia and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Palobia

Landscape: Coastal plains

Landforms: Vegetated sand sheets

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 14 inches; neutral loamy fine sand

2Btn—14 to 31 inches; neutral sandy clay loam

2Btkn—31 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 4 to 19 inches natric

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 5.0 inches (low)

Natural drainage class: Moderately well drained

Runoff: Low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e

Land capability irrigated: 2e

Ecological site name: Loamy Sand 25-35" PZ

Ecological site number: R083EY705TX

Typical vegetation: Seacoast bluestem, Arizona cottontop, curlymesquite, hooded windmillgrass, pink pappusgrass, plains bristlegrass, tanglehead, brownseed paspalum, silver bluestem, Prosopis juliflora, other annual forbs, other perennial forbs, awnless bushsunflower, condalia, spiny hackberry

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat. A few small areas are used for forage production and crop production.

PbB—Palobia loamy fine sand, 1 to 3 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 20 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Palobia and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Palobia

Landscape: Coastal plains

Landforms: Vegetated sand sheets

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 14 inches; neutral loamy fine sand

2Btn—14 to 31 inches; neutral sandy clay loam

2Btkn—31 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 1 to 3 percent

Depth to first restrictive layer: 4 to 19 inches natric

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 5.0 inches (low)

Natural drainage class: Moderately well drained

Runoff: Medium

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e

Land capability irrigated: 2e

Ecological site name: Loamy Sand 25-35" PZ

Ecological site number: R083EY705TX

Typical vegetation: Seacoast bluestem, Arizona cottontop, curlymesquite, hooded windmillgrass, pink pappusgrass, plains bristlegrass, tanglehead, brownseed

paspalum, silver bluestem, Prosopis juliflora, other annual forbs, other perennial forbs, awnless bushsunflower, condalia, spiny hackberry

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat. A few small areas are used for forage production and crop production.

PeB—Palobia fine sandy loam, 0 to 3 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 20 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Palobia and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Palobia

Landscape: Coastal plains (fig. 22)

Landforms: Vegetated sand sheets

Down-slope shape: Linear



Figure 22.—Native vegetation on an area Palobia fine sandy loam, 0 to 3 percent slopes.

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 14 inches; neutral fine sandy loam

2Btn—14 to 31 inches; slightly alkaline sandy clay loam

2Btkn—31 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 3 percent

Depth to first restrictive layer: 8 to 19 inches natric

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 5.0 inches (low)

Natural drainage class: Moderately well drained

Runoff: Medium

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e

Land capability irrigated: 2e

Ecological site name: Tight Sandy Loam 25-35" PZ

Ecological site number: R083EY727TX

Typical vegetation: Seacoast bluestem, Arizona cottontop, curlymesquite, hooded windmillgrass, pink pappusgrass, plains bristlegrass, tanglehead, brownseed paspalum, silver bluestem, Prosopis juliflora, other annual forbs, other perennial forbs, awnless bushsunflower, condalia, spiny hackberry

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat. A few small areas are used for forage production and crop production.

PfA—Palobia-Colmena complex, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 20 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Palobia and similar soils: 55 percent

Colmena and similar soils: 35 percent

Minor components: 10 percent

Major Component Descriptions

Palobia

Landscape: Coastal plains

Landforms: Sand sheet

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 14 inches; neutral fine sandy loam

2Btn—14 to 31 inches; slightly alkaline sandy clay loam

2Btkn—31 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: Natric: 8 to 19 inches

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 5.0 inches (low)

Natural drainage class: Moderately well drained

Runoff: Low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4s

Land capability irrigated: 3e

Ecological site name: Tight Sandy Loam 25-35" PZ

Ecological site number: R083EY727TX

Typical vegetation: Unspecified

Colmena

Landscape: Coastal plains

Landforms: Terraces

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Calcareous loamy alluvium

Typical Profile

A—0 to 11 inches; neutral fine sandy loam

Bt—11 to 39 inches; slightly alkaline sandy clay loam

2Btk—39 to 80 inches; slightly alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 10.0 inches (high)

Natural drainage class: Well drained

Runoff: Low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e

Land capability irrigated: 1

Ecological site name: Sandy Loam 25-35" PZ

Ecological site number: R083AY407TX

Typical vegetation: Little bluestem, other perennial grasses, Arizona cottontop, false Rhodes grass, pink pappusgrass, plains bristlegrass, other shrubs, other perennial forbs, Prosopis juliflora

Use and Management

Major land uses: Used extensively for crop production and forage production. Some areas are used for livestock grazing and wildlife habitat.

PfB—Palobia-Colmena complex, 1 to 3 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairie

Elevation: 20 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Palobia and similar soils: 55 percent

Colmena and similar soils: 35 percent

Minor components: 10 percent

Major Component Descriptions

Palobia

Landscape: Coastal plains

Landforms: Vegetated sand sheets

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 14 inches; neutral fine sandy loam

2Btn—14 to 31 inches; slightly alkaline sandy clay loam
2Btkn—31 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 1 to 3 percent
Depth to first restrictive layer: 8 to 19 inches natric
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Natural drainage class: Moderately well drained
Runoff: Medium
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4s
Land capability irrigated: 3e
Ecological site name: Tight Sandy Loam 25-35" PZ
Ecological site number: R083EY727TX
Typical vegetation: Unspecified

Colmena

Landscape: Coastal plains
Landforms: Terraces
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous loamy alluvium

Typical Profile

A—0 to 11 inches; neutral fine sandy loam
Bt—11 to 39 inches; slightly alkaline sandy clay loam
2Btk—39 to 80 inches; slightly alkaline sandy clay loam

Properties and Qualities

Slope: 1 to 3 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 10.0 inches (high)
Natural drainage class: Well drained
Runoff: Low
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e

Land capability irrigated: 2e

Ecological site name: Sandy Loam 25-35" PZ

Ecological site number: R083AY407TX

Typical vegetation: Little bluestem, other perennial grasses, Arizona cottontop, false Rhodes grass, pink pappusgrass, plains bristlegrass, other shrubs, other perennial forbs

Use and Management

Major land uses: Used extensively for crop production, livestock grazing, and forage production. Some areas are used for wildlife habitat.

PgA—Papagua fine sandy loam, 0 to 1 percent slopes, occasionally ponded

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 33 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Papagua and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Papagua

Landscape: Coastal plains

Landforms: Depressions on sand sheets

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Parent material: Eolian sands over eolian deposits and/or alluvium

Typical Profile

A—0 to 12 inches; neutral fine sandy loam

Btg—12 to 70 inches; neutral sandy clay

Bck—70 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 06 to 0.2 in/hr (slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 9.0 inches (high)

Natural drainage class: Very poorly drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: Occasional
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3w
Land capability irrigated: 3w
Ecological site name: Lakebed 20-35" PZ
Ecological site number: R083EY721TX
Typical vegetation: False Rhodes grass, Arizona cottontop, hooded windmillgrass, other perennial grasses, fall witchgrass, lovegrass tridens, plains bristlegrass, sideoats grama, vine mesquite, Wright's threeawn, other shrubs, other perennial forbs, other trees

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat. Small areas used for forage production and crop production.

PIT—Pits, quarry

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairie
Elevation: 245 to 150 feet
Mean annual precipitation: 25 to 28 inches
Mean annual air temperature: 72 to 74 degrees F
Frost-free period: 319 to 341 days

Composition

Pits quarry and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Pits Quarry

Landscape: Coastal plain
Position on landform: Borrow pit
Parent material: Sandy, loamy, and clayey sediments

Properties and Qualities

Slope: 1 to 40 percent
Depth to first restrictive layer: Not present
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 0.0 (very low)
Flooding frequency: None
Ponding frequency: Not ponded
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: Not assigned

Ecological site name: Not assigned
Ecological site number: Not assigned

PnC—Point Isabel clay loam, 1 to 5 percent slopes, rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 7 to 30 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Point Isabel and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Point Isabel

Landscape: Coastal plains
Landforms: Vegetated dunes
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous clayey and/or loamy eolian deposits

Typical Profile

A—0 to 8 inches; strongly alkaline clay loam
Bkn—8 to 37 inches; strongly alkaline clay
Bknb—37 to 80 inches; strongly alkaline clay

Properties and Qualities

Slope: 1 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 06 to 0.2 in/hr (slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Natural drainage class: Well drained
Runoff: High
Flooding frequency: Rare
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6e
Land capability irrigated: 6e
Ecological site name: Coastal Ridge 25-35" PZ
Ecological site number: R150BY647TX
Typical vegetation: Giant sacaton, false Rhodes grass, other shrubs, Arizona cottontop, hooded windmillgrass, lovegrass tridens, other perennial forbs, plains

bristlegrass, other perennial grasses, buffalograss, fall witchgrass, Berlandier's fiddlewood

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

PoB—Portalto fine sand, 0 to 2 percent slopes, rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 10 to 26 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Portalto and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Portalto

Landscape: Coastal plains

Landforms: Swales on vegetated strand plains

Down-slope shape: Linear

Across-slope shape: Linear, concave

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 8 inches; slightly alkaline fine sand

E—8 to 58 inches; slightly alkaline fine sand

2Btg—58 to 80 inches; slightly acid sandy clay loam

Properties and Qualities

Slope: 0 to 2 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 4.0 inches (low)

Natural drainage class: Moderately well drained

Runoff: Negligible

Flooding frequency: Rare

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e

Land capability irrigated: 4e

Ecological site name: Coastal Sand 25-35" PZ

Ecological site number: R150BY648TX

Typical vegetation: Seacoast bluestem, other perennial grasses, brownseed paspalum, fringed leaf paspalum, gulfdune paspalum, hooded windmillgrass, onesided crinkleawn, other shrubs, other perennial forbs, switchgrass, tanglehead, yellow Indiangrass

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

PrC—Potrero-Lopeno-Noria complex, 0 to 5 percent slopes, very rarely flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 5.0 to 33 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Potrero and similar soils: 45 percent

Lopeno and similar soils: 33 percent

Noria and similar soils: 17 percent

Minor components: 5 percent

Major Component Descriptions

Potrero

Landscape: Coastal plains

Landforms: Deflation flats on sand sheets (fig. 23)

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sand of Holocene age overlying loamy eolian deposits of Quaternary age

Typical Profile

A—0 to 10 inches; slightly acid fine sand

C—10 to 30 inches; slightly acid fine sand

Agb—30 to 35 inches; slightly acid loamy fine sand

Bgb1—35 to 42 inches; neutral loamy fine sand

Bgb2—42 to 80 inches; neutral fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 7.0 inches (moderate)



Figure 23.—In the foreground is an area of Potrero-Lopeno-Noria complex, 0 to 5 percent slopes. Noria soils formed in low deflation flats, and are ponded with water for long periods. An active dune is in the background.

Natural drainage class: Somewhat poorly drained
Runoff: Negligible
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Low Coastal Sand 25-35" PZ
Ecological site number: R150BY650TX
Typical vegetation: Gulf dune paspalum, broomsedge bluestem, seacoast bluestem, other annual forbs, other perennial forbs

Lopeno

Landscape: Coastal plains
Landforms: Low vegetated dunes on deflation flats on sand sheets
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Eolian sands of Holocene age overlying loamy eolian deposits of Quaternary age

Typical Profile

A—0 to 5 inches; slightly acid fine sand
C—5 to 41 inches; slightly acid fine sand
Cg—41 to 65 inches; slightly acid fine sand

Agb—65 to 69 inches; slightly acid fine sand
Bgb—69 to 80 inches; neutral loamy fine sand

Properties and Qualities

Slope: 1 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 8.0 inches (moderate)
Natural drainage class: Moderately well drained
Runoff: Very low
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Low Coastal Sand 25-35" PZ
Ecological site number: R150BY650TX
Typical vegetation: Seacoast bluestem, gulfdune paspalum, balsamscale, other annual forbs, other perennial forbs

Noria

Landscape: Coastal plains
Landforms: Swales on deflation flats on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Eolian deposits of Quaternary age

Typical Profile

Anz—0 to 3 inches; strongly alkaline fine sand
Cnzg—3 to 39 inches; strongly alkaline fine sand
Bnzgb—39 to 80 inches; strongly alkaline loamy fine sand

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 3.0 inches (low)
Natural drainage class: Very poorly drained
Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6w

Land capability irrigated: 6w

Ecological site name: Salt Marsh 25-35" PZ

Ecological site number: R150BY652TX

Typical vegetation: Olney bulrush, spikerush, rush, sedge, hot springs fimbry,
Jamaica sawgrass

Use and Management

Major land uses: Used extensively for wildlife habitat and livestock grazing.

PtB—Premont fine sandy loam, 0 to 3 percent slopes

Setting

Major land resource area: MLRA 83A—Northern Rio Grande Plain

Elevation: 33 to 148 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Premont and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Premont

Landscape: Coastal plains

Landforms: Paleoterraces

Geomorphic positions, three-dimensional: Crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Calcareous loamy alluvium

Typical Profile

A—0 to 8 inches; neutral fine sandy loam

Bt—8 to 37 inches; slightly alkaline sandy clay loam

2Btk—37 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 3 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to
2.0 in/hr (moderate)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 9.0 inches (moderate)

Natural drainage class: Well drained

Runoff: Low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e

Land capability irrigated: 3e

Ecological site name: Sandy Loam 25-35" PZ

Ecological site number: R083AY407TX

Typical vegetation: Buffalograss, false Rhodes grass, hooded windmillgrass, pink pappusgrass, sideoats grama, plains bristlegrass, plains lovegrass, tanglehead, Arizona cottontop, fringleaf paspalum, other annual forbs, other perennial grasses, other shrubs

Use and Management

Major land uses: Used extensively for wildlife habitat, livestock grazing, and crop or forage production.

QuA—Quiteria fine sand, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 20 to 100 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Quiteria and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Quiteria

Landscape: Coastal plains

Landforms: Vegetated sand sheets

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 11 inches; slightly acid fine sand

2Btn—11 to 34 inches; slightly alkaline fine sandy loam

2Btny—34 to 80 inches; moderately alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 5 to 19 inches natric

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 6.0 inches (low)
Natural drainage class: Moderately well drained
Runoff: Low
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4s
Land capability irrigated: 4s
Ecological site name: Loamy Sand 25-35" PZ
Ecological site number: R083EY705TX
Typical vegetation: Seacoast bluestem, brownseed paspalum, hooded windmillgrass, other perennial grasses, tanglehead, fringeleaf paspalum, other perennial forbs, other trees, pinhole bluestem, Wright's threeawn

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

RaB—Ramita fine sand, 0 to 2 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 5 to 50 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Ramita and similar soils: 85 percent
Minor components: 15 percent

Major Component Descriptions

Ramita

Landscape: Coastal plains
Landforms: Vegetated sand sheets
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 15 inches; moderately acid fine sand
Btn1—15 to 22 inches; slightly alkaline fine sandy loam
Btn2—22 to 55 inches; moderately alkaline sandy clay loam
2Btkny—55 to 80 inches; strongly alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 2 percent
Depth to first restrictive layer: 4 to 18 inches natric
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 6.0 inches (low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4s
Land capability irrigated: 4s
Ecological site name: Salty Prairie 25-35" PZ
Ecological site number: R083EY710TX
Typical vegetation: Gulf cordgrass, shoregrass, marshhay cordgrass, other shrubs, other trees, other perennial forbs

Use and Management

Major land uses: Used mainly for livestock grazing and wildlife habitat

RbB—Ramita-Bordas complex, 0 to 2 percent slopes, occasionally ponded

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 5 to 39 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Ramita and similar soils: 60 percent
Bordas and similar soils: 35 percent
Minor components: 5 percent

Major Component Descriptions

Ramita

Landscape: Coastal plains
Landforms: Vegetated sand sheets
Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 15 inches; moderately acid loamy fine sand

Btn1—15 to 22 inches; slightly alkaline fine sandy loam

Btn2—22 to 55 inches; moderately alkaline sandy clay loam

2Btkny—55 to 80 inches; strongly alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 2 percent

Depth to first restrictive layer: 4 to 18 inches natric

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 6.0 inches (low)

Natural drainage class: Poorly drained

Runoff: Negligible

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4s

Land capability irrigated: 4s

Ecological site name: Salty Prairie 25-35" PZ

Ecological site number: R083EY710TX

Typical vegetation: Gulf cordgrass, shoregrass, marshhay cordgrass, other shrubs, other trees, other perennial forbs

Bordas

Landscape: Coastal plains

Landforms: Depressions on sand sheets

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 11 inches; moderately acid loamy fine sand

Btg1—11 to 18 inches; neutral sandy clay loam

Btg2—18 to 70 inches; moderately alkaline sandy clay loam

Btg3—70 to 80 inches; strongly alkaline sandy clay loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 9.0 inches (moderate)
Natural drainage class: Very poorly drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: Occasional
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Lakebed 20-35" PZ
Ecological site number: R083EY721TX
Typical vegetation: False Rhodes grass, Arizona cottontop, hooded windmillgrass, other perennial grasses, fall witchgrass, lovegrass tridens, plains bristlegrass, sideoats grama, vine mesquite, Wright's threeawn, other shrubs, other perennial forbs, other trees

Use and Management

Major land uses: Used extensively for wildlife habitat and livestock grazing.

RoB—Rockport fine sand, 0 to 2 percent slopes, rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 2 to 7 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Rockport and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Rockport

Landscape: Coastal plains
Landforms: Strand plains
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Eolian sands

Typical Profile

A—0 to 18 inches; neutral fine sand
Cg—18 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 0 to 2 percent
Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)
Natural drainage class: Somewhat excessively drained
Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6e
Land capability irrigated: 6e
Ecological site name: Coastal Sand 25-35" PZ
Ecological site number: R150BY648TX
Typical vegetation: Seacoast bluestem, seaoats, brownseed paspalum, gulfdune paspalum, other shrubs, perennial grasses, switchgrass

Use and Management

Major land uses: Used extensively for rangeland and wildlife habitat.

SA—Salt flat, very frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 33 feet
Mean annual precipitation: 27 to 35 inches
Mean annual air temperature: 72 to 74 degrees F
Frost-free period: 280 to 310 days

Composition

Salt Flats very frequently flooded and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Salt Flats, very frequently flooded

Landscape: Coastal plains
Landforms: Blowouts, salt ponds
Parent material: Loamy fluviomarine deposits and/or clayey fluviomarine deposits

Properties and Qualities

Slope: 0 to 3 percent
Depth to first restrictive layer: Not present
Slowest soil permeability to 60 inches, above first cemented restrictive layer: Not specified
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Runoff: Negligible
Flooding frequency: Very frequent

Ponding frequency: Occasional
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: Not assigned
Ecological site name: Not assigned
Ecological site number: Not assigned
Typical vegetation: Not assigned

Use and Management

Major land uses: Used extensively for wildlife habitat.

SF—Salt flat, ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 33 feet
Mean annual precipitation: 27 to 35 inches
Mean annual air temperature: 72 to 74 degrees F
Frost-free period: 280 to 310 days

Composition

Salt Flats ponded and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Salt Flats, ponded

Landscape: Coastal plains
Landforms: Blowouts, salt ponds (fig. 24)
Parent material: Loamy fluviomarine deposits

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: Not present
Slowest soil permeability to 60 inches, above first cemented restrictive layer: Not specified
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: Occasional
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: Not assigned
Ecological site name: Not assigned
Ecological site number: Not assigned
Typical vegetation: Not assigned

Use and Management

Major land uses: Used extensively for wildlife habitat.



Figure 24.—An area of Salt Flats, ponded. These miscellaneous map units vary in size from only a few acres to over 100 acres, as in this photograph. The salt flats formed in areas where sediment was literally blown out by strong southeast winds. An area of Saucel sandy loam, 0 to 1 percent slopes, is in the foreground.

SnC—Sarita fine sand, 0 to 5 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 16 to 131 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Sarita and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Sarita

Landscape: Coastal plains

Landforms: Low vegetated dunes on sand sheets

Down-slope shape: Linear

Across-slope shape: Linear, convex

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 64 inches; slightly acid fine sand

2Bt—64 to 80 inches; slightly acid fine sandy loam

Properties and Qualities

Slope: 0 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 4.2 inches (low)
Natural drainage class: Well drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Sandy 20-28" PZ
Ecological site number: R083EY706TX
Typical vegetation: Seacoast bluestem, other perennial grasses, brownseed paspalum, fringleaf paspalum, gulfdune paspalum, hooded windmillgrass, onesided crinkleawn, other shrubs, other perennial forbs, switchgrass, tanglehead, yellow Indiangrass

Use and Management

Major land uses: Used extensively for livestock grazing land and wildlife habitat.

SrC—Sarita-Cayo complex, 0 to 5 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 16 to 98 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Sarita and similar soils: 70 percent
Cayo and similar soils: 20 percent
Minor components: 10 percent

Major Component Descriptions

Sarita

Landscape: Coastal plains
Landforms: Low vegetated dunes on sand sheets
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 64 inches; slightly acid fine sand
2Bt—64 to 80 inches; slightly acid fine sandy loam

Properties and Qualities

Slope: 1 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 4.0 inches (low)
Natural drainage class: Well drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Sandy 20-28" PZ
Ecological site number: R083EY706TX
Typical vegetation: Seacoast bluestem, other perennial grasses, brownseed paspalum, fringleaf paspalum, gulfdune paspalum, hooded windmillgrass, onesided crinkleawn, other shrubs, other perennial forbs, switchgrass, tanglehead, yellow Indiangrass

Cayo

Landscape: Coastal plains
Landforms: Interdunes on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 19 inches; moderately alkaline fine sandy loam
Bknz—19 to 41 inches; strongly alkaline fine sandy loam
2Bnz—41 to 60 inches; moderately alkaline fine sandy loam
3Bnz—60 to 80 inches; moderately alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 5.0 inches (low)

Natural drainage class: Moderately well drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e
Land capability irrigated: 2e
Ecological site name: Sandy Loam 25-35" PZ
Ecological site number: R083EY702TX
Typical vegetation: False Rhodes grass, Arizona cottontop, hooded windmillgrass, lovegrass tridens, plains bristlegrass, curlymesquite, green sprangletop, knotroot bristlegrass, other annual forbs, slim tridens, whitebrush, spiny hackberry

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

SsC—Sarita-Topo complex, 0 to 5 percent slopes, rarely flooded, frequently ponded

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies
Elevation: 16 to 98 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Sarita and similar soils: 75 percent
Topo and similar soils: 20 percent
Minor components: 5 percent

Major Component Descriptions

Sarita

Landscape: Coastal plains (fig. 25)
Landforms: Low vegetated dunes on sand sheets
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 64 inches; slightly acid fine sand
2Bt—64 to 80 inches; slightly acid fine sandy loam

Properties and Qualities

Slope: 1 to 5 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)

Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 4.0 inches (low)
Natural drainage class: Well drained
Runoff: Negligible
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Sandy 20-28" PZ
Ecological site number: R083EY706TX
Typical vegetation: Seacoast bluestem, other perennial grasses, brownseed paspalum, fringleaf paspalum, gulfdune paspalum, hooded windmillgrass, onesided crinkleawn, other shrubs, other perennial forbs, switchgrass, tanglehead, yellow Indiangrass

Topo

Landscape: Coastal plains (fig. 25)
Landforms: Dune slacks on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

Anz—0 to 10 inches; strongly alkaline fine sandy loam
Bknz—10 to 51 inches; very strongly alkaline fine sandy loam
2Bnzg—51 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 4.0 inches (low)
Natural drainage class: Very poorly drained
Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4w
Land capability irrigated: 4w
Ecological site name: Salty Prairie 26-48" PZ



Figure 25.—Gulf cordgrass on an area of Topo fine sandy loam in an area of Sarita-Topo complex, 0 to 5 percent slopes. These soils are in deflation basins and shallow depressions on sandy eolian plains of the South Texas Sand Sheet. In the background, is an area of Sarita fine sand.

Ecological site number: R150BY551TX

Typical vegetation: Gulf cordgrass, switchgrass, bushy bluestem, other annual forbs, other perennial forbs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

StA—Satatton fine sand, 0 to 1 percent slopes, frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 1 to 3 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Satatton and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Satatton

Landscape: Barrier islands (fig. 26)

Landforms: Deflation flats on wind-tidal flats

Down-slope shape: Linear



Figure 26.—An area of Satatton fine sand, 0 to 2 percent slopes, frequently flooded. There is an extensive area of wind-tidal flats located on South Padre Island. Satatton soils are in the Wind Tidal Flat ecological site.

Across-slope shape: Linear, concave

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

Anz—0 to 17 inches; slightly alkaline fine sand

Cnzg—17 to 80 inches; slightly alkaline fine sand

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 0 to 10 inches salic

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 0.6 inch (very low)

Natural drainage class: Poorly drained

Runoff: Negligible

Flooding frequency: Frequent

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8e

Land capability irrigated: 8e

Ecological site name: Wind Tidal Flat 25-35" PZ

Ecological site number: R150BY716TX

Typical vegetation: Dwarf saltwort

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

SuA—Saucel fine sandy loam, 0 to 1 percent slope, rarely flooded, occasionally ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 1 to 100 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Saucel and similar soils: 95 percent

Minor components: 5 percent

Major Component Descriptions

Saucel

Landscape: Coastal plains

Landforms: Blowouts on sand sheets

Geomorphic positions, three-dimensional: Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy eolian deposits and/or alluvium of Quaternary age

Typical Profile

Az—0 to 4 inches; strongly alkaline fine sandy loam

Bz—4 to 44 inches; strongly alkaline fine sandy loam

Bzg—44 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 0 to 10 inches salic

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 2.0 inches (very low)

Natural drainage class: Poorly drained

Runoff: Negligible

Flooding frequency: Rare

Ponding frequency: Occasional

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e

Land capability irrigated: 7e

Ecological site name: Salt Flat 25-35" PZ

Ecological site number: R150BY651TX

Typical vegetation: Inland saltgrass, bushy seaoxeye, other perennial forbs, Gulf cordgrass, other annual forbs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

SxB—Saucel-Potrero complex, 0 to 2 percent slopes, rarely flooded, occasionally ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 1 to 39 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Saucel and similar soils: 65 percent

Potrero and similar soils: 25 percent

Minor components: 10 percent

Major Component Descriptions

Saucel

Landscape: Coastal plains

Landforms: Blowouts on sand sheets

Geomorphic positions, three-dimensional: Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy eolian deposits and/or alluvium of Quaternary age

Typical Profile

Az—0 to 4 inches; strongly alkaline fine sandy loam

Bz—4 to 44 inches; strongly alkaline fine sandy loam

Bzg—44 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 0 to 10 inches salic

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 2.0 inches (very low)

Natural drainage class: Poorly drained

Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: Occasional
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7s
Land capability irrigated: 7s
Ecological site name: Salt Flat 25-35" PZ
Ecological site number: R150BY651TX
Typical vegetation: Inland saltgrass, bushy seaoxeye, other perennial forbs, Gulf cordgrass, other annual forbs

Potrero

Landscape: Coastal plains
Landforms: Deflation flats on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sand of Holocene age overlying loamy eolian deposits of Quaternary age

Typical Profile

A—0 to 10 inches; slightly acid fine sand
C—10 to 30 inches; slightly acid fine sand
Agb—30 to 35 inches; slightly acid loamy fine sand
Bgb1—35 to 42 inches; neutral loamy fine sand
Bgb2—42 to 80 inches; neutral fine sandy loam

Properties and Qualities

Slope: 0 to 2 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 6.0 to 20 in/hr (rapid)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 7.0 inches (moderate)
Natural drainage class: Somewhat poorly drained
Runoff: Negligible
Flooding frequency: Very rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3e
Land capability irrigated: 3e
Ecological site name: Low Coastal Sand 25-35" PZ
Ecological site number: R150BY650TX
Typical vegetation: Gulf dune paspalum, broomsedge bluestem, seacoast bluestem, other annual forbs, other perennial forbs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

SyA—Sauz loamy fine sand, 0 to 1 percent slopes, rarely flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 1.0 to 100 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Sauz and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Sauz

Landscape: Coastal plains

Landforms: Vegetated sand sheets

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 7 inches; neutral loamy fine sand

Bt_{nz}1—7 to 13 inches; moderately alkaline fine sandy loam

Bt_{nz}2—13 to 24 inches; moderately alkaline fine sandy loam

Bt_{knz}—24 to 55 inches; moderately alkaline fine sandy loam

Cn_{zg}—55 to 80 inches; moderately alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 3 to 14 inches natric

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.2 to 0.6 in/hr (moderately slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 5.0 inches (low)

Natural drainage class: Somewhat poorly drained

Runoff: High

Flooding frequency: Rare

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3w

Land capability irrigated: 3w

Ecological site name: Sandy Flat 22-35" PZ

Ecological site number: R150BY708TX

Typical vegetation: Gulf cordgrass, other perennial grasses, seacoast bluestem, switchgrass, alkali sacaton, broomsedge bluestem, bushy bluestem, other perennial forbs, other shrubs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

SzA—Sauz-Saucel complex, 0 to 1 percent slopes, occasionally flooded, occasionally ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 1 to 100 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Sauz and similar soils: 50 percent

Saucel and similar soils: 40 percent

Minor components: 10 percent

Major Component Descriptions

Sauz

Landscape: Coastal plains

Landforms: Vegetated sand sheets

Geomorphic positions, three-dimensional: Rise

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

A—0 to 7 inches; neutral loamy fine sand

Btnz1—7 to 13 inches; moderately alkaline fine sandy loam

Btnz2—13 to 24 inches; moderately alkaline fine sandy loam

Btknz—24 to 55 inches; moderately alkaline fine sandy loam

Cnzzg—55 to 80 inches; moderately alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 3 to 14 inches natric

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 5.0 inches (low)

Natural drainage class: Somewhat poorly drained

Runoff: High
Flooding frequency: Rare
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 3w
Land capability irrigated: 3w
Ecological site name: Sandy Flat 22-35" PZ
Ecological site number: R150BY708TX
Typical vegetation: Gulf cordgrass, other perennial grasses, seacoast bluestem, switchgrass, alkali sacaton, broomsedge bluestem, bushy bluestem, other perennial forbs, other shrubs

Saucel

Landscape: Coastal plains
Landforms: Blowouts on sand sheets
Geomorphic positions, three-dimensional: Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy eolian deposits and/or alluvium of Quaternary age

Typical Profile

Az—0 to 4 inches; strongly alkaline fine sandy loam
Bz—4 to 44 inches; strongly alkaline fine sandy loam
Bzg—44 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: 0 to 10 inches salic
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: Occasional
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7s
Land capability irrigated: 7s
Ecological site name: Salt Flat 25-35" PZ
Ecological site number: R150BY651TX
Typical vegetation: Inland saltgrass, bushy seaoxeye, other perennial forbs, gulf cordgrass, other annual forbs

Use and Management

Major land uses: Used extensively for wildlife habitat and livestock grazing.

TaA—Tatton fine sand, 0 to 1 percent slopes, very frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 0 to 1 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Tatton and similar soils: 95 percent

Minor components: 5 percent

Major Component Descriptions

Tatton

Landscape: Barrier islands, lagoons

Landforms: Wind-tidal flats

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

Anz—0 to 4 inches; moderately alkaline fine sand

Anzg—4 to 12 inches; slightly alkaline loamy fine sand

Cnzg—12 to 80 inches; slightly alkaline loamy fine sand

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 0 to 10 inches salic

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 4.0 inches (low)

Natural drainage class: Very poorly drained

Runoff: Negligible

Flooding frequency: Very frequent

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8e

Land capability irrigated: 8e

Ecological site name: Wind Tidal Flat 25-35" PZ

Ecological site number: R150BY716TX

Typical vegetation: Dwarf saltwort

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

TBA—Tatton-Beaches, washover fan association, 0 to 1 percent slopes, very frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 0 to 3 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Tatton and similar soils: 55 percent

Beaches washover fan and similar soils: 35 percent

Minor components: 10 percent

Major Component Descriptions

Tatton

Landscape: Barrier islands

Landforms: Wind-tidal flats

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

Anzg—0 to 11 inches; neutral fine sand

Cnzg—11 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: 0 to 10 inches salic

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 4.0 inches (low)

Natural drainage class: Very poorly drained

Runoff: Negligible

Flooding frequency: Very frequent

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8s

Land capability irrigated: Not specified

Ecological site name: Wind Tidal Flat 25-35" PZ

Ecological site number: R150BY716TX

Typical vegetation: Dwarf saltwort

Beaches, washover fan

Landscape: Barrier islands

Landforms: Washover fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian and storm washover sediments of Holocene age

Typical Profile

C—0 to 80 inches; neutral fine sand

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 4.0 inches (low)
Flooding frequency: Very frequent
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 8s
Land capability irrigated: Not specified
Ecological site name: Not assigned
Ecological site number: Not assigned

Use and Management

Major land uses: Used extensively for wildlife habitat.

ToA—Topo fine sandy loam, 0 to 1 percent slopes, rarely flooded, frequently ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 5 to 75 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Topo and similar soils: 90 percent
Minor components: 10 percent

Major Component Descriptions

Topo

Landscape: Coastal plains
Landforms: Dune slacks on sand sheets
Down-slope shape: Linear
Across-slope shape: Linear, concave

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

Anz—0 to 10 inches; strongly alkaline fine sandy loam
Bknz—10 to 51 inches; very strongly alkaline fine sandy loam
2Bnzs—51 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 4.0 inches (low)
Natural drainage class: Very poorly drained
Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: Frequent
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e
Land capability irrigated: 4e
Ecological site name: Salty Prairie 26-48" PZ
Ecological site number: R150BY551TX
Typical vegetation: Gulf cordgrass, switchgrass, bushy bluestem, other annual forbs, other perennial forbs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

TsA—Topo-Saucel complex, 0 to 1 percent slopes, rarely flooded, ponded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 1 to 20 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Topo and similar soils: 60 percent
Saucel and similar soils: 30 percent
Minor components: 10 percent

Major Component Descriptions

Topo

Landscape: Coastal plains

Landforms: Dune slacks on sand sheets

Down-slope shape: Linear

Across-slope shape: Linear, concave

Parent material: Eolian sands of Holocene age overlying eolian deposits and/or alluvium of Quaternary age

Typical Profile

Anz—0 to 10 inches; strongly alkaline fine sandy loam

Bknz—10 to 51 inches; very strongly alkaline fine sandy loam

2Bnzg—51 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 4.0 inches (low)

Natural drainage class: Poorly drained

Runoff: Negligible

Flooding frequency: Rare

Ponding frequency: Frequent

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4e

Land capability irrigated: 4e

Ecological site name: Salty Prairie 26-48" PZ

Ecological site number: R150BY551TX

Typical vegetation: Gulf cordgrass, switchgrass, bushy bluestem, other annual forbs, other perennial forbs

Saucel

Landscape: Coastal plains

Landforms: Blowouts on sand sheets

Geomorphic positions, three-dimensional: Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy eolian deposits and/or alluvium of Quaternary age

Typical Profile

Az—0 to 4 inches; strongly alkaline fine sandy loam

Bz—4 to 44 inches; strongly alkaline fine sandy loam

Bzg—44 to 80 inches; strongly alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: 0 to 10 inches salic
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Natural drainage class: Poorly drained
Runoff: Negligible
Flooding frequency: Rare
Ponding frequency: Occasional
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 7e
Land capability irrigated: 7e
Ecological site name: Salt Flat 25-35" PZ
Ecological site number: R150BY651TX
Typical vegetation: Inland saltgrass, bushy seaoxeye, other perennial forbs, gulf cordgrass, other annual forbs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

TwA—Twinpalms-Yarborough complex, 0 to 3 percent slopes, frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies
Elevation: 0 to 10 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Twinpalms and similar soils: 55 percent
Yarborough and similar soils: 40 percent
Minor components: 5 percent

Major Component Descriptions

Twinpalms

Landscape: Lagoons (fig. 26)
Landforms: Low mounds
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy dredge spoils and/or loamy dredge spoils

Typical Profile

A—0 to 18 inches; slightly alkaline fine sand
C—18 to 30 inches; slightly alkaline fine sandy loam
Cg—30 to 80 inches; slightly alkaline gravelly fine sand

Properties and Qualities

Slope: 1 to 3 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.6 to 2.0 in/hr (moderate)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Not saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Not sodic
Representative total available water capacity to 60 inches: About 2.0 inches (very low)
Natural drainage class: Somewhat poorly drained
Runoff: Low
Flooding frequency: Occasional
Ponding frequency: None
Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6e
Land capability irrigated: 6e
Ecological site name: Coastal Sand 25-35" PZ
Ecological site number: R150BY648TX
Typical vegetation: Seacoast bluestem, other perennial forbs, gulfdune paspalum, annual ragweed, broomsedge bluestem, brownseed paspalum, marshhay cordgrass, other perennial grasses, Scribner panicum, Texas pricklypear, Wright's threeawn

Yarborough

Landscape: Lagoons (fig. 27)
Landforms: Flats
Down-slope shape: Convex, linear
Across-slope shape: Convex, concave
Parent material: Sandy dredge spoils and/or loamy dredge spoils

Typical Profile

Anz—0 to 7 inches; slightly alkaline fine sandy loam
Cnzg—7 to 80 inches; moderately alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent
Percent of area covered by surface fragments: About 8 percent rounded channers
Depth to first restrictive layer: 0 to 30 inches salic
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 0.01 to 0.06 in/hr (very slow)
Salinity, representative within 40 inches: Saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Sodic
Sodicity, maximum within 40 inches: Sodic



Figure 27.—An area of Twinpalms-Yarborough complex, 0 to 3 percent slopes, frequently flooded. These areas are associated with spoil piles located in the Laguna Madre. Twinpalm soils formed on the higher mounded areas (foreground). Yarborough soils formed in the low areas and along the margins of the spoil piles (background).

Representative total available water capacity to 60 inches: About 2.0 inches (very low)

Natural drainage class: Poorly drained

Runoff: Negligible

Flooding frequency: Frequent

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6e

Land capability irrigated: 6e

Ecological site name: Salt Flat 25-35" PZ

Ecological site number: R150BY651TX

Typical vegetation: Shoregrass, inland saltgrass, bushy seaoxeye, other perennial forbs, other perennial grasses, pickleweed, seashore dropseed, sedge, turtleweed, wolfberry

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

VaA—Victine clay loam, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 10 to 66 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Victine and similar soils: 97 percent

Minor components: 3 percent

Major Component Descriptions

Victine

Landscape: Low coastal plains

Landforms: Gilgai on flats

Geomorphic positions, three-dimensional: Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Clayey fluviomarine deposits of late Pleistocene age

Typical Profile

A—0 to 6 inches; moderately alkaline clay loam

Bss—6 to 24 inches; moderately alkaline clay

Bkssy—24 to 45 inches; moderately alkaline clay

Bky—45 to 80 inches; moderately alkaline clay

Properties and Qualities

Slope: 0 to 1 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 6.0 inches (moderate)

Natural drainage class: Somewhat poorly drained

Runoff: High

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 4s

Land capability irrigated: 4s

Ecological site name: Salty Prairie 26-48" PZ

Ecological site number: R150BY551TX

Typical vegetation: Gulf cordgrass, Hartweg's paspalum, inland saltgrass, little bluestem, marshhay cordgrass, other shrubs, vine mesquite, buffalograss, other perennial forbs

Use and Management

Major land uses: Used extensively for wildlife habitat and livestock grazing.

VcA—Victoria clay, 0 to 1 percent slopes

Setting

Major land resource area: MLRA 150A—Gulf Coast Prairies

Elevation: 20 to 121 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 310 to 350 days

Composition

Major components:
Victoria and similar soils: 85 percent
Minor components: 15 percent

Major Component Descriptions

Victoria

Landscape: Flat coastal plains
Landforms: Gilgai on flats
Geomorphic positions, three-dimensional: Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical Profile

A—0 to 12 inches; moderately alkaline clay
Bss—12 to 31 inches; moderately alkaline clay
Bnss—31 to 50 inches; moderately alkaline clay
Bkny—50 to 80 inches; moderately alkaline clay

Properties and Qualities

Slope: 0 to 1 percent
Depth to first restrictive layer: No restrictive layer
Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)
Salinity, representative within 40 inches: Not saline
Salinity, maximum within 40 inches: Saline
Sodicity, representative within 40 inches: Not sodic
Sodicity, maximum within 40 inches: Sodic
Representative total available water capacity to 60 inches: About 8.0 inches (moderate)
Natural drainage class: Well drained
Runoff: High
Flooding frequency: None
Ponding frequency: None
Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2s
Land capability irrigated: 2s
Ecological site name: Blackland 24-44" PZ
Ecological site number: R150AY526TX
Typical vegetation: False Rhodes grass, little bluestem, sideoats grama, yellow Indiangrass, Arizona cottontop, pinhole bluestem, other perennial forbs, pink pappusgrass, plains bristlegrass, Texas wintergrass, vine mesquite

Use and Management

Major land uses: Used extensively for cropland. Other areas are used for rangeland, improved pastures, or wildlife habitat.

VcB—Victoria clay, 1 to 3 percent slopes

Setting

Major land resource area: MLRA 150A—Gulf Coast Prairies

Elevation: 20 to 121 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Victoria and similar soils: 95 percent

Minor components: 5 percent

Major Component Descriptions

Victoria

Landscape: Flat coastal plains

Landforms: Gilgai on dissected flats

Geomorphic positions, three-dimensional: Rise

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Clayey fluviomarine deposits of late Pleistocene age

Typical Profile

A—0 to 12 inches; moderately alkaline clay

Bss—12 to 31 inches; moderately alkaline clay

Bnss—31 to 50 inches; moderately alkaline clay

Bkny—50 to 80 inches; moderately alkaline clay

Properties and Qualities

Slope: 1 to 3 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 8.0 inches (moderate)

Natural drainage class: Well drained

Runoff: Very high

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e

Land capability irrigated: 2e

Ecological site name: Blackland 24-44" PZ

Ecological site number: R150AY526TX

Typical vegetation: False Rhodes grass, little bluestem, sideoats grama, yellow Indiangrass, Arizona cottontop, pinhole bluestem, other perennial forbs, pink pappusgrass, plains bristlegrass, Texas wintergrass, vine mesquite

Use and Management

Major land uses: Used extensively for crop production. Other areas are used for livestock grazing, improved pastures, or wildlife habitat.

W—Water

These are areas of freshwater and saltwater.

YaA—Yarborough fine sandy loam, 0 to 1 percent slopes, very frequently flooded

Setting

Major land resource area: MLRA 150B—Gulf Coast Saline Prairies

Elevation: 0 to 4 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Yarborough and similar soils: 90 percent

Minor components: 10 percent

Major Component Descriptions

Yarborough

Landscape: Lagoons

Landforms: Flats

Down-slope shape: Convex, linear

Across-slope shape: Convex, concave

Parent material: Sandy dredge spoils and/or loamy dredge spoils

Typical Profile

Anz—0 to 8 inches; slightly alkaline fine sandy loam

Cnzg—8 to 80 inches; moderately alkaline fine sandy loam

Properties and Qualities

Slope: 0 to 1 percent

Percent of area covered by surface fragments: About 8 percent rounded channers

Depth to first restrictive layer: 0 to 30 inches salic

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 001 to 06 in/hr (very slow)

Salinity, representative within 40 inches: Saline

Salinity, maximum within 40 inches: Saline

Sodicity, representative within 40 inches: Sodic

Sodicity, maximum within 40 inches: Sodic

Representative total available water capacity to 60 inches: About 2.0 inches (very low)

Natural drainage class: Poorly drained

Runoff: Negligible

Flooding frequency: Very frequent

Ponding frequency: None

Depth to seasonal water table: Present within 80 inches

Interpretive Groups

Land capability nonirrigated: 6w

Ecological site name: Salt Flat 25-35" PZ

Ecological site number: R150BY651TX

Typical vegetation: Shoregrass, inland saltgrass, bushy seaoxeye, other perennial forbs, other perennial grasses, pickleweed, seashore dropseed, sedge, turtleweed, wolfberry

Use and Management

Major land uses: Used extensively for wildlife habitat.

YtC—Yturria fine sandy loam, 1 to 5 percent slopes

Setting

Major land resource area: MLRA 83E—Sand Sheet Prairies

Elevation: 20 to 100 feet

Mean annual precipitation: 25 to 29 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 310 to 350 days

Composition

Major components:

Yturria and similar soils: 95 percent

Minor components: 5 percent

Major Component Descriptions

Yturria

Landscape: Coastal plains

Landforms: Blowouts

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Loamy eolian deposits of Quaternary age

Typical Profile

A—0 to 26 inches; neutral fine sandy loam

Bk—26 to 80 inches; slightly alkaline fine sandy loam

Properties and Qualities

Slope: 1 to 5 percent

Depth to first restrictive layer: No restrictive layer

Slowest soil permeability to 60 inches, above first cemented restrictive layer: 2.0 to 6.0 in/hr (moderately rapid)

Salinity, representative within 40 inches: Not saline

Salinity, maximum within 40 inches: Not saline

Sodicity, representative within 40 inches: Not sodic

Sodicity, maximum within 40 inches: Not sodic

Representative total available water capacity to 60 inches: About 8.0 inches (moderate)

Natural drainage class: Well drained

Runoff: Very low

Flooding frequency: None

Ponding frequency: None

Depth to seasonal water table: Not present within 80 inches

Interpretive Groups

Land capability nonirrigated: 2e

Land capability irrigated: 2e

Ecological site name: Sandy Loam 25-35" PZ

Ecological site number: R083EY702TX

Typical vegetation: False Rhodes grass, little bluestem, silver bluestem, hooded windmillgrass, Arizona cottontop, plains bristlegrass, other annual forbs, other perennial forbs, other perennial grasses, other shrubs

Use and Management

Major land uses: Used extensively for livestock grazing and wildlife habitat.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short-and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 5 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 299,300 acres in the survey area or nearly 16 percent of the total acreage meets the soil requirement for prime farmland. It is located throughout the survey area. Most of the acreage is used for cultivated crops, improved pasture, and rangeland.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in the table 8. This list does not constitute a recommendation for a particular land use. On the soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table, 7. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited*, *somewhat limited*, and *very limited*. The suitability ratings are expressed as *well suited*, *moderately suited*, *poorly suited*, and *unsuited* or as *good*, *fair*, and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

This section prepared by Jim Childers, Zone Conservation Agronomist, Corpus Christi

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed; the system of land capability classification used by the Natural Resources Conservation Service is explained.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Texas Agrilife Extension Service.

There is very little land being used for crops and pasture in Kenedy County as most of the land is rangeland and supports livestock and/or wildlife enterprises. The acreage being farmed in Kleberg County, according to the 2002 Texas Agricultural Statistics, is decreasing annually. Kleberg County has approximately 557,423 acres and annual crops accounts for only about 7.3 percent of the overall total acreage. Field crops suited to the soils and climate of Kleberg County include grain sorghum, cotton, corn, and wheat.

In Kleberg County in 2002, approximately 71,000 acres were used for row crops (fig. 28). Grain sorghum and cotton accounted for over 79 percent of the harvested crop and forage acreage. There were 36,157 acres of grain sorghum which averaged about 2,525 pounds per acre; 20,414 acres of cotton which averaged just under one bale (488 pounds) per acre. Corn made up the balance of the crops and averaged less than 30 bushels per acre. Forages accounted for 4,628 acres and averaged around 2.5 tons per acre.

Wind erosion is the major management concern on nearly all of the cropland because of the long unsheltered distances in the fields. Water erosion is an additional concern in some areas where the slope is more than 2 percent. Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Second, soil erosion on farmland results in sediment entering streams and watercourses. Controlling erosion minimizes the pollution of streams and lakes by sediment and improves the quality of water for livestock, fish, wildlife, and other recreational uses.

Residue management practices, such as conservation tillage and seasonal residue management helps to control erosion. Leaving crop residues on the surface helps to protect the soil against surface crusting, reduces wind erosion, the impacts of raindrops, and decreases the runoff rate. It also provides shade for the soil and thus reduces the soil temperature and evaporation rate. Crop residues increases organic matter, improves soil tilth, and minimizes compaction caused by farm machinery. Using non-inversion tillage equipment that leaves crop residue on the surface is very effective in controlling erosion and minimizing compaction. Wind strips also provide protection for plant survival and to reduce wind erosion.

Parallel terraces are effective in controlling water erosion because they reduce the length of slopes. They are most practical in areas of deep and moderately deep soils that have a slope of more than 1 percent.

Beef cattle production and hunting leases are the major agricultural enterprises. Pasture management is also important. The trend for the past several years has been to convert land from other uses to pasture and hay. Introduced grasses and annual forages that respond to good management practices are generally planted. They are used mainly in combination with native range to provide year-round grazing. They are also used for supplemental grazing or haying.



Figure 28.—Cotton growing on an area of Victoria clay, 0 to 1 percent slopes. Cotton is one of the major crops in Kleberg County.

Perennial grasses that are well adapted to the survey area include hybrid bermudagrass, kleingrass, Wilman lovegrass, common buffelgrass, Alamo switchgrass, and guineagrass.

Good management practices for pasture include fertilization, rotational grazing, weed control, and brush management. Good management practices for hay include applying fertilizer and cutting at the proper height and stage of plant growth to maintain plant vigor.

Rangeland

This section was written by Vivian Garcia, Zone Rangeland Management Specialist, Natural Resources Conservation Service, Corpus Christi, Texas.

Rangeland is the land on which the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs suitable for grazing or browsing. In areas that have similar climate and topography, the kind and amount of vegetation produced are closely related to the kind of soil. Effective management is based on the relationship of soils, vegetation, and water. Rangeland or native grassland receives no regular or frequent cultural treatment, such as fertilizer or tillage.

About 939,072 acres or 98 percent of Kenedy County is rangeland. The rangeland in Kenedy County is located within the MLRA 83E—Sand Sheet Prairie and the MLRA 150B—Gulf Coast Saline Prairie major land resource areas of Texas. The original vegetation grew predominantly on open grassland. It consisted of tall, mid and short grasses interspersed with woody shrubs and some trees. The relatively abundant woody shrubs were suppressed by periodic fires, some of which were started by lightning and others by the Native American inhabitants of the area.

About 380,169 acres or 58 percent of Kleberg County is rangeland. The rangeland of Kleberg County is in MLRA 83A—Northern Rio Grande Plain, MLRA

83E—Sand Sheet Prairie, MLRA 150A—Gulf Coast Prairie, and MLRA 150B—Gulf Coast Saline Prairie major land resource areas of Texas.

The vegetative community on the rangeland in the survey area has changed drastically during the last 200 years. The major factors in the change are fluctuating climatic conditions; continuous, heavy grazing by livestock; and the elimination of fire, both prescribed and wild. Woody plants have increased in abundance on much of the rangeland. The more productive grasses and forbs have been grazed out in some areas and replaced by a mixture of short grasses and annual forbs.

Forage production in areas of rangeland occurs primarily during two distinct growth periods. Most of the annual growth occurs in April, May, and June, when spring rains and moderate temperatures are most favorable to the growth of warm-season plants. A secondary growth period usually occurs in September and October, when fall rains and gradually cooling temperatures are common.

The objective in range management is to control grazing so that the plants growing on a site remain or improve to about the same in kind and amount as the climax plant community for that site. Such management generally results in the optimum production of vegetation, reduction of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides habitat for wildlife, and protects soil and water resources.

Grazing can change the quantity and quality of forage on an ecological site by changing the proportion of decreaseers, increaseers, and invader plants in the composition of the plant community.

Decreaseers are plants in the climax vegetation that tend to decrease in relative amount under close grazing. They generally are the tallest and most productive perennial grasses and forbs and the most palatable to livestock.

Increaseers are plants in the climax vegetation that increase in relative amounts as the more desirable decreaseers are reduced by close grazing. They are commonly shorter and are generally less palatable to livestock.

Invaders are plants that are normally not included in the climax plant community because they cannot compete with the climax vegetation for moisture, nutrients, and light. They invade the site and grow along with the increaseers only after the amount of the climax vegetation has been reduced by continual heavy grazing. Most invader species have little grazing value.

Good production of livestock and forage on rangeland is obtained primarily by managing the time of grazing and limiting the amount of forage removed. Some of the food manufactured by the green parts of the plant is used for growth, and some is used for use in re-growth and seed production. Management practices are used in a grazing program to permit this process to take place.

Following years of prolonged overuse of range, seed sources of desirable vegetation are eliminated. Vegetation can be established by applying one or a combination of the following practices: Fencing, water development, range seeding, cattle walkways, or other treatments that vitalize the stands of native plants or provide better shelter for livestock. Thereafter, prescribed grazing must be applied to maintain and improve the range. Following are some of the more commonly used resource management practices.

Fencing. This practice excluded livestock from areas needing protection from grazing and confines livestock to a specific area. Fencing also subdivides grazing land to permit use of a planned grazing system and protects new seedlings or plantings from grazing. Fences must be carefully planned. They should fit into a prescribed burn program.

Watering. Watering places should be provided for livestock at various locations in the grazing area. This practice reduces pressure and overuse around a single watering place, creating a more uniform use of the entire range.

Prescribed burning. This practice is used to some extent on prairie rangeland. Livestock operators and wildlife managers use this practice to periodically burn off dense cover of mature vegetation. When done properly and at the right time, the practice stimulates new succulent growth, increases the availability of forage, restores climax plant species on upland rangeland, and reduces infestations of noxious weeds and brush. Forage can be severely damaged or killed if the surface is too dry, allowing the fire to reach the plant crowns and roots. Livestock operators and wildlife managers usually attempt to burn every 3 years when the soil surface is moist. Burning more often is not recommended because of the risk of harming perennial grasses. Prescribed burning is an effective tool that can be substituted for chemical or mechanical treatment.

Prescribed grazing. The objective of this practice is the controlled harvest of vegetation or browsing animals, managed with the intent to achieve a specific objective(s).

Trend is the rating of the direction of change that is occurring on a particular ecological site. The plant community and its associated components are either succeeding towards or regressing away from the climax plant community. Trend is not static although sometimes it is difficult to determine the direction of change and may not be apparent to those unfamiliar to that particular site.

Trend can be determined only after evaluating the following attributes that affect the rangeland trend: species composition changes, abundance of seedlings and young plants, plant vigor, and condition of the soil surface. Evaluation of any one of these factors on an ecological site can indicate whether the plant community is improving or regressing. The most accurate evaluation of trend occurs when all or several of the factors are considered in their proper relation with each other.

Rangeland health is the degree to which the integrity of the soil, the vegetation, the water and the air as well as the ecological processes of the rangeland ecosystem is balanced and sustained. It is an ecological rating that evaluates the current functioning of the ecological processes on an ecological site. Range and health determination provide the decision-maker with information and data on the functioning of the ecological processes and the stability of the site. It also provides information on site potential, integrity, and its ability to respond to treatment.

Rangeland health indicators are divided into three areas of evaluation: 1) the degree of soil and/or site stability and watershed function; 2) the integrity of the nutrient cycle and flow; 3) the presence of functioning recovery mechanisms. A single rating of healthy, at risk, or unhealthy will not be given to a site.

Growth of native vegetation in the survey area is quite variable because of large variations in annual and seasonal rainfall. Droughts are very common. Low, inconsistent rainfall combined with high evaporation rates cause a depletion in soil moisture with a corresponding decrease in forage production. Grazing management should be flexible and closely correlated to plant growth curves and to fluctuations in seasonal and annual forage production.

A typical growth curve for native vegetation representing the percentage of total growth occurring each month, is as follows:

Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2	3	7	20	30	15	5	10	4	3	1

The table above shows that most of the growth, about 77 percent of the growth occurs in April to August. The month of September can increase some production depending on the tropical systems impacting the Texas coast.

Table 10 shows for each soil that supports rangeland vegetation, the ecological site and the potential annual production of vegetation in favorable, normal, and unfavorable years. An explanation of the column headings in the table follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of a site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Electronic Field Office Technical Guide, which is available online at <http://www.nrcs.usda.gov/technical/efotg/> or in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Ecological Sites

The following section describes each ecological site in Kenedy and Kleberg Counties. The potential plant community is described as well as the site's response to heavy, continuous grazing. For additional detail on the soils in each ecological site, refer to the Detailed Soil Map Units section. Information on rangeland forage yields for each soil can be found in table 10.

The survey area is composed of five Major Land Resource Areas: MLRA 83A—Northern Rio Grande Plain; MLRA 83D—Southern Rio Grande Plain; MLRA 83E—Sand Sheet Prairie; MLRA 150A—Gulf Coast Prairie; and MLRA 150B—Gulf Coast Saline Prairies. A total of 29 ecological sites occur in the survey area, each being assigned to a particular MLRA. Descriptions of ecological sites are available online at <http://esis.sc.gov.usda.gov> or in the local offices of the Natural Resource Conservation Service.

MLRA 83A—Northern Rio Grande Plain

Clay Loam Ecological Site. This group includes soil mapping unit: CkA—Clareville clay loam, 0 to 1 percent slopes, CkB—Clareville clay loam, 1 to 3 percent slopes, CzA—Czar sandy clay loam, 0 to 1 percent slopes.

The climax vegetation is a prairie ecological site, dominated by midgrasses with occasional perennial forbs and woody species. The composition, by weight, is about 90 percent grasses, 5 percent forbs, and 5 percent woody species of shrubs. Approximate total annual yield of the site in historic climax ranges from 2,000 pounds per acre in low average production years to 6,052 pounds per acre of air-dry vegetation in above average production years.

About 80 percent of the climax vegetation is made up of midgrasses such as little bluestem, false Rhodesgrass, multiflower false Rhodesgrass, cane bluestem, sideoats grama, silver bluestem, Arizona cottontop, pink pappusgrass, hooded windmillgrass, and plains bristlegrass, 15 percent short grasses such as buffalograss,

common curlymesquite, threeawn, and Texas wintergrass. Approximately 5 percent species composition is composed of forbs such as dozedaisy, white sagebrush, bundleflowers, Engelmann-daisy, sensitive plant, awnless bush sunflower, and orange zexmenia. The remaining 5 percent of species composition are woody species such as whitebrush, spiny hackberry, snakewood, hogplum, ephedra, guayacum, wolfberry, pricklypear, mesquite, and desert yaupon.

If retrogression occurs as a result of overgrazing, little bluestem, false Rhodesgrass, cane bluestem, silver bluestem, Arizona cottontop, and plains bristlegrass are replaced by short grasses such as buffalograss, common curlymesquite, threeawn, tumblegrass, and red grama. Further degradation of the Clay Loam site leads to woody species dominance of mesquite, tasajillo, and pricklypear. Understory vegetation includes short grasses, annuals, and low quality forbs occupying the interspaces between the woody canopy.

Gray Sandy Loam Ecological Site. This group includes soil mapping unit: GeB—Gertrudis fine sandy loam, 0 to 3 percent slopes.

This site was originally open prairie dominated by midgrasses with scattered mesquite and understory throughout the landscape. Forage production for this site ranged from 2,500 pounds per acre of air-dry vegetation in below average production years to approximately 4,500 pounds per acre of air-dry vegetation in above average production years.

Approximately 85 percent of the historical climax vegetation on this site consisted of grasses; of which two-flower and four-flower trichloris, Arizona cottontop, feathery bluestem, green sprangletop, lovegrass tridens, plains bristlegrass, and plains lovegrass made up approximately 60 percent. Other historic climax grasses found at this site are: Nash and hooded windmillgrass, curlymesquite, buffalograss, vine mesquite, pink pappusgrass, knotroot bristlegrass, slim tridens, and sand dropseed. Forbs which consisted of 5 percent species composition found at this site include snoutbean, bundleflower, sensitive briar, bushsunflower, orange zexmenia, dalea, and American snoutbean. Woody species composed of 10 percent species composition include mesquite, whitebrush, blackbrush, spiny hackberry, vine ephedra, condalia, lime pricklyash, Texas persimmon, kidneywood, guajillo, ebony, and desert yaupon.

Over time as livestock grazing pressure increases without provided growing season rest lower forage quality vegetation out-competes and replaces heavily grazed higher forage quality vegetation. During this transition to lower forage quality vegetation such as whitebrush, blackbrush, mesquite, spiny hackberry, and cactus may form dense canopies with threeawn, croton, sneezeweed, ragweed, tumblegrass, and grassbur invading the site between and among the canopies. By applying prescribed grazing and in certain cases brush management forage production can be improved and/or maintained on this site.

Sandy Loam Ecological Site. This group includes soil mapping units: CmA—Colmena fine sandy loam, 0 to 1 percent slopes; CmB—Colmena fine sandy loam, 1 to 3 percent slopes; CrA—Czar fine sandy loam, 0 to 1 percent slopes; CrB—Czar fine sandy loam, 1 to 3 percent slopes; DnB—Delfina fine sandy loam, 0 to 3 percent slopes; the Colmena part of PfA—Palobia-Colmena complex, 0 to 1 percent slopes; the Colmena part of PfB—Palobia-Colmena complex, 1 to 3 percent slopes; and PtB—Premont fine sandy loam, 0 to 3 percent slopes.

This site was originally open grassland dominated by midgrasses intermixed with some woody and forb species. Under historic climax, forage production for this site ranged from 2,200 pounds per acre of air-dry vegetation in below average production years to approximately 4,400 pounds per acre of air-dry vegetation in above average production years.

Approximately 90 percent of the historical climax vegetation on this site consisted of grasses; of which seacoast bluestem, fourflower trichloris, cottontop, tanglehead feather bluestem, pink pappusgrass, plains bristlegrass, and hooded windmillgrass

made up approximately 80 percent of the species composition. Other grasses present at this site include slim tridens, lovegrass tridens, fall witchgrass, threeawn and fringed leaf paspalum. Forbs consisting of 5 percent species composition include: orange zexmenia, bushsunflower, sensitive briar, velvet bundleflower, Engelmann-daisy, dalea, partridgepea, croton, and other annuals. Woody plants comprise the remaining 5 percent species composition and species present include: kidneywood, vine ephedra, spiny hackberry, blackbrush, desert yaupon, condalia, wolfberry, guyacan, and mesquite.

If retrogression occurs, as a result of heavy continuous grazing, little bluestem and Arizona cottontop are replaced by silver bluestem, plains bristlegrass, and hooded windmillgrass. Kidneywood, desert yaupon, blackbrush, ephedra, spiny hackberry, condalia, wolfberry, guayacan, mesquite, and associated woody plants generally increase until the community resembles a scrub forest that has an understory of shade-tolerant, herbaceous plants such as sedges and low panicum. If heavy grazing continues for many years, red lovegrass, red grama, blackbrush, and spiny hackberry increase significantly.

MLRA 83D—Southern Rio Grande Plain

Fresh Marsh Ecological Site. This group includes soil mapping unit: IcA—Incell clay, 0 to 1 percent slopes, very rarely flooded, frequently ponded.

Approximately 90 percent of the climax plant community is made up of grasses and grass-like plants and the remaining 10 percent are forbs. Approximate total annual yield of this site ranges from 9,000 pounds of air-dry vegetation per acre in below average production years to 14,000 pounds of air-dry vegetation per acre in above average years.

The climax plant community on this site varies, depending on the depth, salinity, and longevity of the water. Climax vegetation of grasses and grass-likes includes marshhay cordgrass, sedges, bulrushes, big cordgrass, cattail, and Hartweg's paspalum. Forbs found in historic climax include smartweed, aster, alligatorweed, and sumpweed.

Under proper management vegetation production for this site is high. Over time, as grazing pressure increases without provided growing season rest, lower forage quality vegetation out-competes and replaces heavily grazed higher forage quality vegetation. Under heavy use, Hartweg's paspalum and marshhay and big cordgrass decrease. Longtom, sawgrass, bulrush, and cattail increase. Cockspur, smartweed, alligatorweed, and sesbania are prominent invaders.

Lakebed Ecological Site. This group includes soil mapping unit: MoA—Montealto clay, 0 to 1 percent slopes, very rarely flooded, occasionally ponded.

The climax vegetation grows in open prairie, dominated by midgrasses, short grasses and forbs. This site periodically ponds water for several days to several months during wet periods. Typically this site is a depression grassland and ponds water at 2 inches or so around the periphery to as much as 2 feet of depth in the center of the depression. The composition, by weight, is about 90 percent grasses, 3 percent forbs, and 7 percent shrubs. Approximate total annual yield of the site ranges from 2,500 pounds per acre in below average production years to 5,200 pounds per acre of air-dry vegetation in above average production years.

About 55 percent of the climax vegetation is made up of midgrasses such as vine mesquite, sideoats grama, plains bristlegrass, false Rhodesgrass, Arizona cottontop, 35 percent short grasses such as hooded windmillgrass, fall witchgrass, lovegrass triden, threeawn, and low panicum and paspalum species. Forbs consisting of 5 percent species composition include ragweed, bundleflower, yellow neptunia, smartweed, dock, wild petunia, longbarb arrowhead, and broomweed. Shrubs consisting of 5 percent species composition include mesquite and oaks.

If retrogression occurs as a result of overgrazing, vine mesquite, sideoats grama, Arizona cottontop, and plains bristlegrass are replaced by common bermudagrass, sedges, rushes, knotroot bristlegrass, and some woody plants. If heavy grazing continues, woody plants such as mesquite, huisache, retama, and sesbania increase in abundance and form a dense stand that has an understory of threeawn, broomweed, and ragweed.

MLRA 83E—Sand Sheet Prairie

Lakebed Ecological Site. This group includes soil mapping unit: BrA—Bordas loamy fine sand, 0 to 1 percent slopes, occasionally flooded; MoA—Montealto clay, 0 to 1 percent slopes, very rarely flooded, occasionally ponded; PgA—Papagua fine sandy loam, 0 to 1 percent slopes; , occasionally ponded, and the Bordas part of RbB—Ramita-Bordas complex, 0 to 2 percent slopes, occasionally ponded.

The climax vegetation grows in open prairie, dominated by midgrasses, short grasses, and forbs. This site periodically ponds water for several days to several months during wet periods. Typically this site is a depression grassland and ponds water at 2 inches or so around the periphery to as much as 2 feet of depth in the center of the depression. The composition, by weight, is about 90 percent grasses, 3 percent forbs, and 7 percent shrubs. Approximate total annual yield of the site ranges from 2,500 pounds per acre in below average production years to 5,200 pounds per acre of air-dry vegetation in above average production years.

About 55 percent of the climax vegetation is made up of midgrasses such as vine mesquite, sideoats grama, plains bristlegrass, false Rhodesgrass, Arizona cottontop, 35 percent short grasses such as hooded windmillgrass, fall witchgrass, lovegrass tridens, threeawn, and low panicum and paspalum species. Forbs consisting of 5 percent species composition include ragweed, bundleflower, yellow neptunia, smartweed, dock, wild petunia, longbarb arrowhead, and broomweed. Shrubs consisting of 5 percent species composition include mesquite and oaks.

If retrogression occurs as a result of overgrazing, vine mesquite, sideoats grama, Arizona cottontop and plains bristlegrass are replaced by common bermudagrass, sedges, rushes, knotroot bristlegrass, and some woody plants. If heavy grazing continues, woody plants such as mesquite, huisache, retama, and sesbania increase in abundance and form a dense stand that has an understory of threeawn, broomweed, and ragweed.

Loamy Sand Ecological Site. This group includes soil mapping units: DfB—Delfina loamy fine sand, 0 to 2 percent slopes, ; PbA—Palobia loamy fine sand, 0 to 1 percent slopes; PbB—Palobia loamy fine sand, 1 to 3 percent slopes; QuA—Quiteria fine sand, 0 to 1 percent slopes.

This site was originally open grassland intermixed with some woody and forb species. Under climax conditions, forage production for this site ranged from 2,000 pounds per acre of air-dry vegetation in below average production years to approximately 4,500 pounds per acre of air-dry vegetation in above average production years.

Approximately 70 percent of the historical climax vegetation on this site consisted of midgrasses such as seacoast bluestem, Arizona cottontop, plains bristlegrass, pink pappusgrass, sideoats grama, and tanglehead, 15 percent short grasses such as hooded windmillgrass, fringeleaf paspalum, and slim tridens, 5 percent forbs such as bushsunflower, sensitive briar, verbena, dayflower, orange zexmenia, dalea, snoutbean, ragweed, croton, western indigo, gayfeather, mallow and other forbs, and the remaining 10 percent shrubs such as mesquite, live oak, pricklypear, tasajillo, blackberry, lantana, condalia, spiny hackberry, hogplum, and wolfberry.

Over time as grazing pressure increases without provided growing season rest lower forage quality vegetation out-competes and replaces heavily grazed higher forage quality vegetation. During this transition from higher forage quality vegetation

to lower forage quality vegetation taller grass species (such as seacoast bluestem, Arizona cottontop, and sideoats grama) disappear and are replaced with many annual forbs, balsamscale, red lovegrass, hairy grama, signalgrass, threeawn, and grassbur. Mesquite, spiny hackberry, lantana, and pricklypear also increase but the site remains relatively open even in poor conditions. By applying prescribed grazing and in certain cases brush management, forage production can be improved and/or maintained on this site.

Salty Prairie Ecological Site. This group includes soil mapping units: RaB—Ramita loamy fine sand, 0 to 2 percent slopes; and the Ramita part of RbB—Ramita-Bordas complex, 0 to 2 percent slopes, occasionally ponded.

This site was originally open prairie dominated by mid and tall grasses with scattered forbs, shrubs, and trees. Grasses make up 90 percent species composition, shrubs 5 percent, trees 3 percent, and forbs 2 percent. Forage production for this site ranged from 3,500 pounds per acre of air-dry vegetation in below average production years to approximately 5,500 pounds per acre of air-dry vegetation in above average production years.

Approximately 75 percent of the historical climax vegetation on this site consisted of gulf cordgrass. The remaining 15 percent of grasses are shoregrass and marshhays cordgrass. Forbs are composed of 5 percent species composition and include: prairie acacia, lavender, pickleweed, saltmarsh aster, and Texas varilla. Shrubs and trees comprise the remaining 5 percent species composition and include: willow baccharis, bushy seaside tansy, spiny chloracantha, pricklypear, and Virginia glasswort.

Over time as livestock grazing pressure increases without provided growing season rest lower forage quality vegetation out-competes and replaces heavily grazed higher forage quality vegetation. During this transition to lower forage quality vegetation gulf cordgrass initially increases in composition then decreases and is replaced with whorled dropseed, sumpweed, and annual forbs with scattered mesquite and pricklypear. By applying prescribed grazing and in certain cases brush management forage production can be improved and/or maintained on this site.

Sand Hills Ecological Site. This group includes soil mapping units: FaC—Falfurrias fine sand, 1 to 5 percent slopes (fig. 29); FaE—Falfurrias fine sand, 5 to 15 percent slopes; the Falfurrias part of FmC—Falfurrias-Atiras-Medanito complex, 0 to 5 percent slopes; the Falfurrias part of FoD—Falfurrias-Cayo complex, 0 to 8 percent slopes; and the Falfurrias part of FtD—Falfurrias-Topo complex, 0 to 8 percent slopes, rarely flooded, frequently ponded.

This site was originally an open grassland dominated by mid and tall grasses with few live oak motts and forbs. Under climax conditions, forage production for this site ranged from 1,500 pounds per acre of air-dry vegetation in below average production years to approximately 4,000 pounds per acre of air-dry vegetation in above average production years.

Approximately 85 percent of the historical climax vegetation on this site consisted of grasses. Tall grasses such as big bluestem and indiangrass make up 10 percent of species composition. Midgrasses such as gulfdune paspalum, switchgrass, seacoast bluestem, tanglehead, brownseed paspalum, crinkleawn comprise of 60 percent of species composition. The remaining 15 percent of grasses consisted of short grasses such as fringeleaf paspalum, threeawn, balsamscale and gulfdune paspalum. Forbs consisting of 10 percent species composition include snoutbean, sensitive briar, bundleflower, yellow neptunia, and gayfeather. Woody plants making up the remaining 5 percent species composition include live oak, pricklypear, spiny hackberry, mesquite, and condalia.

Over time, as livestock grazing pressure increases without provided growing season rest, lower forage quality vegetation out-competes and replaces heavily grazed higher forage quality vegetation. This transition occurs in two stages. The first



Figure 29.—Native vegetation on an area of Falfurrias fine sand, 1 to 5 percent slopes. Falfurrias soils are in the Sand Hills ecological site.

stage is a result of heavy grazing over a relatively short period of time. During this transition from higher forage quality vegetation to lower forage quality vegetation, highly palatable vegetation species such as seacoast bluestem, crinkleawn, tanglehead, Texasgrass and perennial forbs disappear and are replaced with brownseed paspalum, fringeleaf paspalum, balsamscale, threeawn, annuals and some woody species. The second stage is a result of heavy grazing without a growing season rest over many years. In this situation balsamscale, threeawn, annual grasses, and annual weeds significantly increase in abundance; mesquite will increase to a lesser degree. An overstory of live oak has become dominant on much of this site. By applying prescribed grazing and in certain cases brush management forage production can be improved and/or maintained on this site.

Sandy Ecological Site. This group includes soil mapping units: EsA—Estella fine sand, 0 to 1 percent slopes; the Atiras and Medanito parts of FmC—Falfurrias-Atiras-Medanito complex, 0 to 5 percent slopes; NfC—Nueces fine sand, 0 to 5 percent slopes; NsC—Nueces-Sarita complex, 0 to 5 percent slopes; PaA—Padrones fine sand, 0 to 3 percent slopes; SnC—Sarita fine sand, 0 to 5 percent slopes; the Sarita part of SrC—Sarita-Cayo complex, 0 to 5 percent slopes; and the Sarita part of SsC—Sarita-Topo complex, 0 to 5 percent slopes, rarely flooded, frequently ponded.

This site was originally open grassland dominated by mid and tall grasses with occasional mesquite, live oak trees, and other woody and forb species. Under climax conditions, forage production for this site ranged from 2,000 pounds per acre of air-dry vegetation in below average production years to approximately 5,000 pounds per acre of air-dry vegetation in above average production years.

Approximately 90 percent of the historical climax vegetation on this site consisted of grasses; of which 40 percent is made up of tall grasses such as seacoast bluestem, big bluestem, switchgrass, and indiagrass, 30 percent is made up of crinkleawn, brownseed paspalum, fringed signalgrass, tanglehead, and gulfdune

paspalum, and 20 percent short grasses such as fringed leaf paspalum, hooded windmillgrass, threeawn, balsamscale grass, purple dropseed, Texasgrass, marsh bristlegrass, and fall witchgrass. Forbs which make up 5 percent of the species composition include Texas bullnettle, coastal indigo, gayfeather, sensitive briar, snoutbean, partridgepea, croton, snake cotton, lantana, beebalm, and annual forbs. Woody plants consisted of the remaining 5 percent species composition and include mesquite and live oak.

Over time as livestock grazing pressure increases without provided growing season rest lower forage quality vegetation out-competes and replaces heavily grazed higher forage quality vegetation. This transition occurs in two stages. The first stage is a result of heavy grazing over a relatively short period of time. During this transition from higher forage quality vegetation to lower forage quality vegetation highly palatable vegetation species, such as seacoast bluestem, switchgrass, crinkleawn, and snoutbean, disappear and are replaced with brownseed paspalum, fringed leaf paspalum, balsamscale, Wright threeawn, croton, and partridgepea. The second stage is a result of heavy grazing without growing season rest over many years. In this situation balsamscale, Wright threeawn, annual grasses, queen's delight, mesquite, and annual forbs significantly increase in abundance. Applying prescribed grazing and in certain cases brush management forage production can be improved and/or maintained on this site.

Sandy Loam Ecological Site. This group includes soil mapping units: the Cayo part of FoD—Falfurrias-Cayo complex, 0 to 8 percent slopes; ChA—Cayo fine sandy loam, 0 to 1 percent slopes; the Cayo part of SrC—Sarita-Cayo complex, 0 to 5 percent slopes; and YtC—Yturria fine sandy loam, 1 to 5 percent slopes.

This site was originally open grassland dominated by midgrasses intermixed with some woody and forb species. Under historic climax conditions, forage production for this site ranged from 2,000 pounds per acre of air-dry vegetation in below average production years to approximately 5,000 pounds per acre of air-dry vegetation in above average production years.

Approximately 85 percent of the historical climax vegetation on this site consisted of grasses; of which seacoast bluestem and false Rhodesgrass made up approximately 65 percent of species composition. Other important grass species found in historic climax include Arizona cottontop, hooded windmillgrass, plains bristlegrass, and silver bluestem. Forbs consisting of 20 percent species composition include: orange zexmenia, bushsunflower, sensitive briar, velvet bundleflower, Engelmann-daisy, dalea, partridgepea, croton, and other annuals. Woody plants comprise the remaining 15 percent species composition and species present include: kidneywood, vine ephedra, spiny hackberry, blackbrush, desert yaupon, condalia, wolfberry, guyacan, and mesquite.

If retrogression occurs, as a result of heavy continuous grazing, little bluestem and Arizona cottontop are replaced by silver bluestem, plains bristlegrass, and hooded windmillgrass. Kidneywood, desert yaupon, blackbrush, ephedra, spiny hackberry, condalia, wolfberry, guayacan, mesquite, and associated woody plants generally increase until the community resembles a scrub forest that has an understory of shade-tolerant, herbaceous plants such as sedges and low panicum. If heavy grazing continues for many years, red lovegrass, red grama, blackbrush, and spiny hackberry increase significantly.

Tight Sandy Loam Ecological Site. This group includes soil mapping units: PeB—Palobia fine sandy loam, 0 to 3 percent slopes; the Palobia part of PfA—Palobia-Colmena complex, 0 to 1 percent slopes; and the Palobia part of PfB—Palobia-Colmena complex, 1 to 3 percent slopes.

This site was originally open grassland dominated by midgrasses intermixed with some woody and forb species. Under climax conditions, forage production for this site ranged from 2,000 pounds per acre of air-dry vegetation in below average

production years to approximately 3,500 pounds per acre of air-dry vegetation in above average production years.

Approximately 65 percent of the historical climax vegetation on this site consisted of midgrasses such as false Rhodesgrass, pink pappusgrass, sideoats grama, plains bristlegrass, plains lovegrass, tanglehead, and Arizona cottontop. Other grasses present at this site include buffalograss, hooded windmillgrass, and fringed leaf paspalum. Forbs consisting of 25 percent species composition include: orange zexmenia, bushsunflower, sensitive briar, velvet bundleflower, Engelmann-daisy, dalea, partridgepea, croton, and other annuals. Woody plants comprise the remaining 10 percent species composition and species present include: kidneywood, vine ephedra, spiny hackberry, blackbrush, desert yaupon, condalia, wolfberry, guyacan, and mesquite.

If retrogression occurs, as a result of heavy continuous grazing, sideoats grama, plains bristlegrass and pink pappusgrass are replaced by buffalograss and hooded windmillgrass. Kidneywood, desert yaupon, blackbrush, ephedra, spiny hackberry, condalia, wolfberry, guayacan, mesquite, and associated woody plants generally increase until the community resembles a scrub forest that has an understory of shade-tolerant, herbaceous plants such as sedges and low panicum. If heavy grazing continues for many years, red lovegrass, red grama, blackbrush, and spiny hackberry increase significantly.

MLRA 150A—Gulf Coast Prairie

Blackland Ecological Site. This group includes soil mapping units: BbA—Banquete clay, 0 to 1 percent slopes; CnA—Cranell sandy clay loam, 0 to 1 percent slopes; CnB—Cranell sandy clay loam, 1 to 3 percent slopes; VcA—Victoria clay, 0 to 1 percent slopes; and VcB—Victoria clay, 1 to 3 percent slopes.

The climax vegetation is an open prairie dominated by tall and midgrasses. The composition, by weight, is about 90 percent grasses, 5 percent forbs, and 5 percent woody species. Approximate total annual yield of the site ranges from 6,500 pounds per acre in low average production years to 9,500 pounds per acre of air-dry vegetation in above average production years.

About 50 percent of the climax vegetation is made up tall grasses such as big bluestem, Florida paspalum, switchgrass, indiagrass, and eastern gamagrass, 25 percent midgrasses such as sideoats grama, little bluestem, vine mesquite, brownseed paspalum, tall and meadow dropseed, largespike bristlegrass, silver bluestem, longtom, marsh bristlegrass, smutgrass, white tridens, and longspike tridens, 5 percent short grasses such as buffalograss, fall witchgrass, Pan American balsamscale, low panicum, and low paspalum, and the remaining 10 percent species composition consisted of cool-season grasses such as sedges, Virginia wildrye, and Texas wintergrass. The forb component makes up 5 percent species composition and species include prairie clovers, bundleflowers, Engelmann-daisy, gaura, gayfeather, snoutbean, powderpuff, yellow neptunia, wild petunia, skullcap, spiny chloracantha, saltmarsh aster, broomweed, partridgepea, croton, verbena, and camphorweed. The remaining 5 percent species composition is composed of shrubs, vines, and trees such as peppervine, sorrelvine, dewberry, greenbrier, hackberry, mesquite, and live oak.

If retrogression occurs as a result of overgrazing, tall grasses such as switchgrass, big bluestem, and indiagrass decrease and midgrasses such as little bluestem, sideoats grama, brownseed paspalum, and longspike tridens increase. Forbs also include as a result of decreased competition for sunlight and moisture. Further degradation of the site because of continued heavy grazing leads to a plant community dominated by brush species such as mesquite, huisache, and Macartney

rose with understory species such as low panicum and paspalum, Texas wintergrass, sedges, and annual forbs and grasses.

Clay Loam Ecological Site. This group includes soil mapping unit: CaA—Calallen sandy clay loam, 0 to 1 percent slopes.

The climax vegetation is a savannah, dominated by tall and midgrasses with occasional perennial forbs and woody species. The composition, by weight, is about 92 percent grasses, 5 percent forbs, and 3 percent woody species of shrubs and trees. Approximate total annual yield of the site ranges from 3,425 pounds per acre of air-dry vegetation in low average production years to 5,340 pounds per acre of air-dry vegetation in above average production years.

About 30 percent of the climax vegetation is made up tall grasses such as big bluestem, switchgrass, little bluestem, and indiagrass; 42 percent midgrasses such as sideoats grama, silver bluestem, hooded windmillgrass, Arizona cottontop, pink pappusgrass, plains lovegrass, plains bristlegrass, false Rhodesgrass, and southwestern bristlegrass; 15 percent short grasses such as threeawn, buffalograss, Texas grama, fall witchgrass and common curlymesquite; 3 percent cool-season grasses such as Texas wintergrass; and 2 percent grass-likes such as sedge and flatsedge. Approximately 5 percent species composition is composed of forbs such as ragweed, croton, bundleflowers, sensitive briar, and awnless bush sunflower. The remaining 3 percent of species composition are woody species such as whitebrush, spiny hackberry, snakewood, hogplum, ephedra, guayacum, wolfberry, mesquite, and oaks.

If retrogression occurs as a result of overgrazing, big bluestem, little bluestem, indiagrass, and switchgrass are replaced by short grasses such as buffalograss, common curlymesquite, threeawn, red grama, and Texas wintergrass. Further degradation leads to woody species dominance of mesquite, whitebrush, spiny hackberry, pricklypear, and brasil. Understory vegetation includes short grasses, annuals, and low quality forbs occupying the interspaces between the woody canopy.

Claypan Prairie Ecological Site. This group includes soil mapping unit: OfA—Orelia fine sandy loam, 0 to 1 percent slopes.

The climax vegetation grows in open prairie dominated by tall and midgrasses. The composition, by weight, is about 90 percent grasses and 10 percent forbs. Approximate total annual yield of the site in historic climax ranges from 3,400 pounds per acre of air-dry vegetation in low average production years to 6,200 pounds per acre of air-dry vegetation in above average production years.

About 30 percent of the climax vegetation is made up of little bluestem; 30 percent consisted of tall grasses such as big bluestem, Florida paspalum, switchgrass, indiagrass, eastern gamagrass, 20 percent midgrasses such as brownseed paspalum, longtom, and longspike tridens, and the remaining 10 percent species composition is composed of short grasses and grass-likes such as fall witchgrass, gulfhairawn muhly, low panicum and paspalum, Texas wintergrass, Pan American balsamscale, and sedges. Approximately 10 percent species composition are composed of forbs such as ragweed, bundleflower, eryngo, gayfeather, mimosa, yellow neptunia, fogfruit, partridgepea, snow on the prairie, and marsh elder.

If retrogression occurs as a result of overgrazing, switchgrass, big bluestem, indiagrass, eastern gamagrass; and Florida paspalum are replaced by little bluestem, brownseed paspalum, and longspike tridens. Annual forbs respond to drought-wet cycles and are seasonally abundant. If heavy grazing continues, woody plants such as huisache, baccharis, mesquite, and Macartney rose increase in abundance and form a dense stand that has an understory of low panicum and paspalum along with numerous annual forbs.

Lakebed Ecological Site. This group includes soil mapping unit: EdA—Edroy clay, 0 to 1 percent slopes, occasionally ponded.

The climax vegetation grows in open prairie, dominated by midgrasses, tall grasses, and sedges. This site periodically ponds water for several days to several

months during wet periods. Typically this site is a depressional grassland and ponds water at 2 inches or so around the periphery to as much as 2 feet of depth in the center of the depression. The composition, by weight, is about 95 percent grasses and 5 percent forbs. Approximate total annual yield of the site in historic climax ranges from 4,250 pounds per acre in below average production years to 6,625 pounds per acre of air-dry vegetation in above average production years.

About 35 percent of the climax vegetation is made up of tall grasses such as Florida paspalum, switchgrass, and eastern gamagrass; 45 percent midgrasses such as longtom; 10 percent grass-likes and sedges such as sedge, flatsedge, spikerush, marsh bristlegrass, and gaping grass; and the remaining 5 percent grass species were composed of panicum and paspalum species. The remaining 5 percent species composition are composed of forbs such as ragweed, bundleflower, mudplantain, waterclover, yellow neptunia, smartweed, dock, wild petunia, longbarb arrowhead, broomweed, yellowdicks, and annual marshelder. Almost all of the forbs are annual.

If retrogression occurs as a result of overgrazing, switchgrass, Hartweg paspalum, and vine mesquite are replaced by common bermudagrass, sedge, rush, knotroot bristlegrass, and some woody plants. If heavy grazing continues, woody plants such as mesquite, huisache, retama, and sesbania increase in abundance and form a dense stand that has an understory of threeawn, broomweed, and ragweed.

MLRA 150B—Gulf Coast Saline Prairies

Coastal Dune Ecological Site. This group includes soil mapping units: DaE—Daggerhill fine sand, 2 to 12 percent slopes, rarely flooded; the Daggerhill part of, DdE—Daggerhill-Mustang complex, 0 to 12 percent slopes, occasionally flooded, occasionally ponded; the Daggerhill part of DeE—Daggerhill-Sataton complex, 0 to 12 percent slopes, frequently flooded; GhE—Greenhill fine sand, 2 to 12 percent slopes, rarely flooded; and the Greenhill part of GmE—Greenhill-Mustang Complex, 0 to 12 percent slopes, occasionally flooded, occasionally ponded.

In climax, the composition by weight is about 75 percent grasses, 23 percent forbs, and 2 percent woody species. This site is an open grassland plain dominated by tall and midgrasses. Approximate annual yield for this site in historic climax ranges from 3,000 pounds of air-dry vegetation per acre in below average production years to 7,000 pounds of air-dry vegetation per acre per year in above average production years.

Approximately 60 percent of the climax vegetation is made up of tall grasses such as bitter panicgrass, seaoats, gulfdune paspalum and seacoast bluestem, and 15 percent midgrasses such as thin paspalum, marshhay cordgrass, and threeawn. Forbs consisting of 23 percent species composition that are present in climax include partridgepea, snoutbean, dayflower, goldentop, milkpea, camphorweed, and ragwort. Shrubs and vines consisting of 2 percent species composition include beach morning-glory, bayhops, and pricklypear.

As retrogression occurs, tall grass species such as bitter panicum and seaoats decrease while species such as red lovegrass, thin paspalum, and threeawn increase. As deterioration continues, mid and short grasses continue to decrease along with an increase of annual species such as partridgepea, crotons, camphorweed, sunflowers, beach morning-glory, and goat foot morning-glory.

If overgrazing continues, this site may revert to a very high percentage of annual vegetation, thus having an increase of bare ground resulting in blowing sand and dune movement.

Coastal Ridge Ecological Site. This group includes soil mapping units: the Lalinda part of AsC—Arrada-Lalinda complex, 0 to 5 percent slopes, very frequently flooded, frequently ponded; LaC—Lalinda fine sandy loam, 1 to 5 percent slopes,

very rarely flooded; and PnC—Point Isabel clay loam, 1 to 5 percent slopes, rarely flooded.

The climax vegetation of this ecological site occurs as a grassland with scattered brush and pricklypear. The composition by weight is about 85 percent grasses, 5 percent forbs, and 10 percent woody plants. Approximate total annual yield of this site in historic climax ranges from 1,000 pounds per acre of air-dry vegetation in low production years to 5,000 pounds per acre of air-dry vegetation in above average production years.

Approximately 65 percent of the climax vegetation is made up of a combination of tall and midgrasses such as giant sacaton, false Rhodesgrass, Arizona cottontop, and plains bristlegrass and the remaining 20 percent are short grass species such as buffalograss, fall witchgrass, hooded windmillgrass, pink pappusgrass, and lovegrass tridens. Approximately 10 percent of species composition is composed of shrubs and cacti such as desert yaupon, spiny hackberry, condalia, twisted acacia, and pricklypear. The remaining 5 percent species composition is composed of forbs which includes sensitive briar, dalea, orange zexmenia, and bush sunflower.

As retrogression occurs, grasses that dominate the site give way to condalia, spiny hackberry, cenizo, coyotillo, leatherstem, and pricklypear forming a dense chaparral type landscape. Some common invaders on this site include red grama, whorled dropseed, gummy lovegrass, and acacia species.

Coastal Sand Ecological Site. This group includes soil mapping units: AcC—Arenisco fine sand, 1 to 5 percent, very rarely flooded; the Arenisco part of AnC—Arenisco-Topo complex, 0 to 5 percent slopes, flooded, frequently ponded; the Arenisco part of LpC—Lopeno-Potrero-Arenisco complex, 0 to 5 percent slopes, very rarely flooded; the Panam part of MnB—Madre-Panam complex, 0 to 2 percent slopes, occasionally flooded, frequently ponded; the Padre part of MtB—Mustang-Padre complex, 0 to 2 percent slopes, occasionally flooded, frequently ponded; the Panam part of MuB—Mustang-Panam complex, 0 to 2 percent slopes, occasionally flooded, frequently ponded; PoB—Portalto fine sand, 0 to 2 percent slopes, rarely flooded; RoB—Rockport fine sand, 0 to 2 percent slopes, rarely flooded; and the Twinpalms part of TwA—Twinpalms-Yarborough complex, 0 to 3 percent slopes, frequently flooded.

In climax, the composition by weight is about 85 percent grasses, 15 percent forbs, and trace amounts of woody species. This site is a midgrass dominant prairie community. Approximate annual yield for this site in historic climax ranges from 1,200 pounds of air-dry vegetation per acre per year in below average production years to 4,800 pounds of air-dry vegetation per acre per year in above average production years.

Approximately 55 percent of the climax vegetation is made up of tall grasses such as gulfdune paspalum and seacoast bluestem; 20 percent midgrasses such as broomsedge bluestem, brownseed paspalum, and marshhay cordgrass; 5 percent cool-season grasses such as Scribner panicum; and 5 percent short grasses such as threeawn, red lovegrass, and thin paspalum. Forbs consisting of 15 percent species composition that are present in climax include ragweed, wild indigo, croton, hydrocotyle, phlox, groundcherry, and camphor daisy. Shrubs found in trace amounts include pricklypear, honey mesquite, live oak, and willow.

As retrogression occurs, brownseed paspalum, gulfdune paspalum, sea oats, and gulf muhly are initial strong increasers. As deterioration continues, smutgrass, carpetgrass, threeawn, broomsedge bluestem, yankeeweed, ragweed, sesbania along with an increased amount of annual grasses and forbs invade the site.

If overgrazing continues, this site may revert to a very high percentage of annual vegetation, thus becoming subject to wind erosion during dry conditions.

Coastal Swale Ecological Site. This group includes soil mapping units: NeA—Novillo peat, 0 to 1 percent slopes, rarely flooded, frequently ponded.

In climax, the composition by weight is about 90 percent grasses, 5 percent forbs, and 5 percent shrubs and trees. This site is a vegetated barrier flat that is dominated by wetland plants, tall grasses, midgrasses, forbs, shrubs, and trace amounts of trees. Approximate annual yield for this site in historic climax ranges from 2,000 pounds per acre in below average production years to 4,000 pounds of air-dry vegetation per acre per year in above average production years.

Approximately 60 percent of the climax vegetation is made up of wetland plants such as bulrush and cattail; 15 percent tall and midgrasses such as bushy bluestem, gulfdune paspalum, sturdy bulrush, and saltmeadow cordgrass, 10 percent mid and short grasses such as slimleaf panicgrass, inland saltgrass, marsh bristlegrass, and seashore dropseed; and 5 percent grass-likes such as sedges, spikerushes, and starrush whitetop. Forbs consisting of 5 percent species composition that are present in climax include herb of grace, floating marshpennywort, narrowleaf marsh elder, frogfruit, perennial saltmarsh aster. The remaining 5 percent of species composition consisted of Jesuit's bark and black willow.

As retrogression occurs, gulfdune paspalum, marshhay cordgrass, and other midgrasses give way to inland saltgrass, Virginia dropseed, Scribner panicum, frogfruit, and water hyssop. As deterioration continues, further decline in short grass species such as dropseed and saltgrass leads to dominance of forbs such as frogfruit, water hyssop, and bare ground increases.

Firm Brackish Marsh Ecological Site. This group includes soil mapping units: the Madre part of MaA—Madre-Malaquite complex, 0 to 1 percent slopes, occasionally flooded, frequently ponded; and the Madre part of MnB—Madre-Panam complex, 0 to 2 percent slopes, occasionally flooded, frequently ponded.

Approximately 90 percent of the climax plant community is made up of grasses and grass-like plants and the remaining 10 percent are forbs. This site is an open prairie dominated by midgrasses. Approximate total annual yield of this site in historic climax ranges from 2,000 pounds per acre during below average production years to 3,730 pounds per acre during above average production years.

The climax plant community on this site varies, depending on the depth, salinity, and longevity of the water. Climax vegetation approaches 75 percent species composition of midgrasses such as gulfdune paspalum, sturdy bulrush, marshhay cordgrass, and bushy bluestem; 5 percent short grasses such as Scribner panicum, inland saltgrass, shoregrass, and seashore dropseed; and 10 percent grass-likes such as sedge, spikerush, and starrush whitetop. Forbs approaching 10 percent in historic climax include marshpennywort, frogfruit, blue mistflower, lavender thrift, seapurslane, camphorweed, and saltmarsh aster.

Under proper management vegetation production for this site is high. Over time as grazing pressure increases without providing growing season rest, lower forage quality vegetation out-competes and replaces heavily grazed higher forage quality vegetation. Under heavy use, gulfdune paspalum, bulrush, and marshhay cordgrass are greatly reduced in this community while seashore dropseed, seashore saltgrass, spikerush, frogfruit, round pennywort, and bushy sea-oxeye increase and may dominate the site. Further degradation to the site includes loss of midgrasses and reduced stature of short grasses and increase of bushy sea-oxeye, frogfruit, round pennywort, sea lavender, sea purslane, sumpweed, and shoregrass. Bare ground also increases.

Low Coastal Sand Ecological Site. This group includes soil mapping units: the Mustang part of DdE—Daggerhill-Mustang complex, 0 to 12 percent slopes, occasionally flooded; the Mustang part of GmE—Greenhill-Mustang complex, 0 to 12 percent slopes, occasionally flooded; the Lopeno and Potrero parts of LpC—Lopeno-Potrero-Arenisco complex, 0 to 5 percent slopes, very rarely flooded; the Lopeno part of LsC—Lopeno-Sauz complex, 0 to 5 percent slopes, rarely flooded, occasionally ponded; the Lopeno part of LzC—Lopeno-Sauz complex, 0 to 5 percent slopes,

flooded; MsA—Mustang fine sand, 0 to 1 percent slopes, occasionally flooded; the Mustang part of MtB—Mustang-Padre complex, 0 to 2 percent slopes, occasionally flooded; the Mustang part of MuB—Mustang-Panam complex, 0 to 2 percent slopes, occasionally flooded; the Lopeno and Potrero parts of PrC—Potrero-Lopeno-Noria complex, 0 to 5 percent slopes, very rarely flooded, frequently ponded; the Potrero part of SxB—Saucel-Potrero complex, 0 to 2 percent slopes, rarely flooded, occasionally ponded.

This site was originally open midgrass dominant prairie with some shrubs within the plant community. Forage production for this site ranged from 2,000 pounds per acre of air-dry vegetation in below average production years to approximately 4,000 pounds per acre of air-dry vegetation in above average production years.

Approximately 90 percent of the historical climax plant community consists of grasses; of which seacoast bluestem, switchgrass, marshay cordgrass, and gulfdune paspalum made up approximately 90 percent of the composition. Other historic climax grasses found on this site are: bushy bluestem, slimleaf panicgrass, common threesquare, inland saltgrass, and seashore dropseed. Forbs consist of the remaining 10 percent of species composition and include: bushy seaside tansy, blue mistflower, marshpennywort, lavender, frogfruit, American snoutbean, and Jesuit's bark.

Over time as livestock grazing pressure increases without provided growing season rest lower forage quality vegetation out-competes and replaces heavily grazed higher forage quality vegetation. During this transition to lower forage quality vegetation seacoast bluestem, switchgrass, marshhay cordgrass, and gulfdune paspalum decrease in composition on the landscape and are replaced with brownseed paspalum, gulf muhly, threeawn, and in some locations dense canopies of liveoak. By applying prescribed grazing and in certain cases brush management forage production can be improved and/or maintained on this site.

Salt Flat Ecological Site. This group includes soil mapping units: Saucel part of LsC—Lopeno-Saucel complex, 0 to 5 percent slopes, rarely flooded, occasionally ponded; the Malaquite part of MaA—Madre-Malaquite complex, 0 to 1 percent slopes, occasionally flooded, frequently ponded; SuA—Saucel fine sandy loam, 0 to 1 percent slopes, rarely flooded, occasionally ponded; the Saucel part of SxB—Saucel-Potrero complex, 0 to 2 percent slopes, rarely flooded, occasionally ponded; the Saucel part of SzA—Saucel-Saucel complex, 0 to 1 percent slopes, rarely flooded, occasionally ponded; Saucel part of TsA—Topo-Saucel complex, 0 to 1 percent slopes, rarely flooded, ponded; Yarborough part of TwA—Twinpalms-Yarborough complex, 0 to 3 percent slopes, frequently flooded; and YaA—Yarborough fine sandy loam, 0 to 1 percent slopes, very frequently flooded.

There are two plant communities found in this ecological site depending on elevation, hydrology, and salinity across the landscape. One plant community is found in the wetter and more saline areas of the site and lies adjacent to the Wind Tidal Flat ecological site. This site is dominated by glasswort and saltwort species. The other plant community is found in slightly higher elevation and less saline and is dominated by saltgrass and shoregrass species. Approximate annual yield of this site in excellent condition ranges from 700 pounds per acre in below average production years to 1,500 pounds of air-dry vegetation per acre per year in above average production years.

The climax plant community in the higher elevation and found in less saline condition is made up of predominately shoregrass with some seashore saltgrass, marshay cordgrass, gulf cordgrass, and annual grasses. Forbs found in this plant community include turtleweed, saltwort, bushy seaside tansy, lavender, and seapurslane.

As retrogression occurs, seashore saltgrass and bushy sea oxeye decrease in abundance. Saltwort and glassworts slowly increase while other plants decrease rapidly. With further deterioration barren areas increase which increases the salinity in the surface retarding new plant growth on the site.

Salt Marsh Ecological Site. This group includes soil mapping unit: AaA—Aransas clay, 0 to 1 percent slopes, frequently flooded; and the Noria part of PrC—Potrero-Lopeno-Noria complex, 0 to 5 percent slopes, very rarely flooded, frequently ponded.

Approximately 90 percent of the climax plant community is made up of grasses and grass-like plants, 5 percent are composed of forbs, and the remaining 5 percent are composed of shrubs and vines. The historic climax plant community for this site is a mid and tall grass dominant community on a wet prairie landscape. Approximate total annual yield of this site in excellent condition ranges from 4,000 pounds of air-dry vegetation per acre in below average production years to 11,900 pounds of air-dry vegetation per acre in above average production years.

The climax plant community on this site varies, depending on the depth, salinity, and longevity of the water. Climax vegetation of grasses and grass-likes includes marshhay cordgrass, gulf cordgrass, sedge, flatsedge, inland saltgrass, shoregrass, longtom, seashore paspalum, switchgrass, indiagrass, eastern gamagrass, cattail, common reed, bulrush, and marsh bristlegrass. Forbs found in historic climax include alligatorweed, ragweed, turtleweed, herb of grace, seaside tansy, spiny chloracantha, heliotrope, marsh elder, sea lavender, sea purslane, sumpweed, and saltmarsh aster. Shrubs found in historic climax include eastern baccharis, Carolina desert-thorn, and sesbania.

Under proper management vegetation production for this site is high. Over time as grazing pressure increases without provided growing season rest lower forage quality vegetation out-competes and replaces heavily grazed higher forage quality vegetation. Under heavy use, marshhay cordgrass, smooth cordgrass, and seashore saltgrass declines while gulf cordgrass, shoregrass, sea ox-eye, and spiny chloracantha increases. Further site degradation would lead to increase in bare ground, forbs such as spiny chloracantha and sumpweed, and woody species such as baccharis and sesbania.

Salty Prairie Ecological Site. This group includes soil mapping units: the Topo part of AnC—Arenisco-Topo complex, 0 to 5 percent slopes, flooded, frequently ponded; CeA—Carreta sandy clay loam, 0 to 1 percent slopes; DrA—Dietrich loamy fine sand, 0 to 1 percent slopes, very rarely flooded; the Topo part of FtD—Falfurrias-Topo complex, 0 to 8 percent slopes, rarely flooded, frequently ponded (fig. 30); NaA—Narta loam, 0 to 1 percent slopes, rarely flooded; the Topo part of SsC—Sarita-Topo complex, 0 to 5 percent slopes, rarely flooded, frequently ponded; ToA—Topo fine sandy loam, 0 to 1 percent slopes, rarely flooded, frequently ponded; the Topo part of TsA—Topo-Saucel complex, 0 to 1 percent slopes, rarely flooded, ponded; and VaA—Victine clay loam, 0 to 1 percent slopes.

This site was originally open prairie dominated by mid and tall grasses. Forage production for this site ranged from 5,610 pounds per acre of air-dry vegetation in below average production years to approximately 8,400 pounds per acre of air-dry vegetation in above average production years.

Approximately 95 percent of the historical climax vegetation on this site consisted of grasses, of which gulf cordgrass, seacoast bluestem, and little bluestem made up approximately 70 percent of the composition. Other historic climax grasses found on this site are: 10 percent tall grass species such as Hartweg paspalum, switchgrass, and alkali sacaton; 10 percent midgrasses such as inland saltgrass, marshhay cordgrass, vinemesquite, silver bluestem, and white triden; and 5 percent short grasses such as buffalograss and annual grasses. Forbs are composed of 2 percent species composition and include: prairie acacia, lavender, pickleweed, saltmarsh aster, and Texas varilla. Shrubs comprise the remaining 3 percent species composition and include: willow baccharis, bushy seaside tansy, spiny chloracantha, pricklypear, and Virginia glasswort.



Figure 30.—An area of Topo (foreground), part of Falfurrias-Topo complex, 0 to 8 percent slopes. Topo soils are in the Salty Prairie ecological site.

Over time as livestock grazing pressure increases without provided growing season rest lower forage quality vegetation out-competes and replaces heavily grazed higher forage quality vegetation. During this transition to lower forage quality vegetation gulf cordgrass initially increases in composition then decreases and is replaced with whorled dropseed, sumpweed, and annual forbs with scattered mesquite and pricklypear. By applying prescribed grazing and in certain cases brush management forage production can be improved and/or maintained on this site.

Sandy Ecological Site. This group includes DsB—Dietrich loamy fine sand, 0 to 2 percent slopes, very rarely flooded.

In climax, this ecological site is an open prairie dominated by tall and midgrasses. The composition, by weight, is about 90 percent grasses, 5 percent forbs, and 5 percent shrubs and trees. Approximate annual production of this site in excellent condition ranges from 3,200 pounds per acre in below average production years to 6,000 pounds per acre air-dry weight in above average production years.

About 55 percent of the climax vegetation is made up of tall grasses such as seacoast bluestem, Florida paspalum, indiagrass, and switchgrass; 20 percent midgrasses such as gulfdune paspalum, brownseed paspalum, crinkleawn, and wildrye; and 15 percent of short grasses and grass-like vegetation such as threeawn, fall witchgrass, hooded windmillgrass, fringeleaf paspalum; and 10 percent forbs include snoutbean, partridgepea, croton, gaura, gayfeather, sunflower, sumpweed, ragweed, and sensitive briar. Woody plants include mesquite and live oak.

As retrogression occurs as a result of heavy grazing, seacoast bluestem and switchgrass are replaced by broomsedge bluestem, bushy bluestem, brownseed paspalum, lovegrass, signalgrass, croton, and partridgepea. If heavy grazing continues, gulf cordgrass, Hartweg paspalum, partridgepea, croton, and other annual forbs significantly increase in abundance. In a deteriorated condition, gulf cordgrass may increase to as much as 90 percent of total annual production along with other invaders.

Sandy Flat Ecological Site. This group includes Sauz part of LzC—Lopeno-Sauz complex, 0 to 5 percent slopes, flooded; SyA—Sauz loamy fine sand, 0 to 1 percent slopes, rarely flooded; and the Sauz part of SzA—Sauz-Saucel complex, 0 to 1 percent slopes, occasionally flooded, occasionally ponded.

In climax, this ecological site is an open prairie dominated by tall and midgrasses. The composition, by weight, is about 85 percent grasses, 13 percent forbs, and 2 percent woody plants. Approximate annual production of this site in excellent condition ranges from 2,000 pounds per acre in below average production years to 5,000 pounds per acre air-dry weight in above average production years.

About 85 percent of the climax vegetation is made up of a combination of gulf cordgrass, seacoast bluestem, bushy bluestem, broomsedge bluestem, and switchgrass. The other grasses are alkali sacaton, Hartweg paspalum, brownseed paspalum, Florida paspalum, sprangletop, hooded windmillgrass, fringed signalgrass, red lovegrass, and tumble lovegrass; 10 percent forbs include American snoutbean, partridgepea, croton, gaillardia, and sensitive briar; and 10 percent woody plants include mesquite and tasajillo.

As retrogression occurs as a result of heavy grazing, seacoast bluestem and switchgrass are replaced by broomsedge bluestem, bushy bluestem, brownseed paspalum, lovegrass, signalgrass, croton, and partridgepea. If heavy grazing continues, gulf cordgrass, Hartweg paspalum, partridgepea, croton, and other annual forbs significantly increase in abundance. In a deteriorated condition, gulf cordgrass may increase to as much as 90 percent of total annual production along with other invaders.

Subaqueous Grass Flat Ecological Site. This group includes BA—Baffin soils, submerged.

In climax, this ecological site is a submerged vegetative community. The composition, by weight, is entirely grasses and grass-likes. Approximate annual production of this site ranges from 0 pounds per acre in below average production years to 50 pounds per acre air-dry weight in above average production years.

About 75 percent of the species composition is shoalweed; 15 percent is manateegrass; 5 percent is turtlegrass; and 5 percent is widgeongrass.

As retrogression occurs as a result of hurricanes or human activities such as dredging or boating, the ground may become bare and void of vegetation.

Wind Tidal Flat Ecological Site. This group includes ArA—Arrada sandy clay loam, 0 to 1 percent slopes, very frequently flooded, frequently ponded; the Arrada part of AsC—Arrada-Lalinda complex, 0 to 5 percent slopes, very frequently flooded, frequently ponded; BdA—Barrada clay, 0 to 1 percent slopes, very frequently flooded, occasionally ponded; the Sattaton part of DeE—Daggerhill-Sattaton complex, 0 to 12 percent slopes, frequently flooded; the Sattaton part of DXC—Duneland-Sattaton association, 0 to 5 percent slopes, occasionally flooded; StA—Sattaton fine sand, 0 to 1 percent slopes, frequently flooded; TaA—Tatton fine sand, 0 to 1 percent slopes, very frequently flooded; and the Tatton part of TBA—Tatton-Beaches, washover fan association, 0 to 1 percent slopes, very frequently flooded.

In climax, this ecological site is algal crust community. The composition, by weight, is entirely grasses and grass-likes. Following inundation by climatic events, this area would populate with halophytic vegetation such as glasswort, dwarf saltwort, sea lavender, and sea purslane. Approximate annual production of this site ranges from 0 pounds per acre in below average production years to 15 pounds per acre air-dry weight in above average production years.

Species found on this site include lavender thrift, Virginia glasswort, pickleweed, and sea purslane.

As the surface dries, the surface salinity also rises. This mechanism becomes toxic to the plants. The algal crust will also dry up curling up at the edges resulting in this site looking like a large mud flat area.

Recreational Development

Table 11 and Table 12 described in this section, show the soils of the survey area rated according to limitations that affect their suitability for recreational development. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in these tables can be supplemented by other information in this survey, for example, interpretations for dwellings without basements, for local roads and streets, and for septic tank absorption fields.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large

stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf course fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

By Stan Reinke, Corpus Chrisit Zone Biologist, NRCS (retired)

Wildlife is an important resource in the survey area. Most of the land in the survey area will support wildlife and is leased for hunting or is used by the landowners for hunting.

Improvement and manipulation of habitat for game species has been given special emphasis in the survey area. The major wildlife species include white-tailed deer, javelina, bobwhite quail, scaled quail, white-winged dove, mourning dove, and Rio Grande turkey. In some locations, feral hogs (fig. 31) are numerous. Fox, raccoon, badger, skunk, opossum, armadillo, cottontail rabbit, jackrabbit, squirrel, bats, and numerous rodents also inhabit the survey area. The common predators are coyote (fig. 32) and bobcat along with an occasional mountain lion.

Intensive management of deer herds to produce quality bucks is becoming quite common. Many ranches use high fences to assist with control of deer numbers.

The successful management of wildlife requires the proper combination of food, cover, and water. A lack of any one of these elements, an unfavorable balance among them, or an inadequate distribution of them can eliminate or severely limit a desired kind of wildlife in an area. Information about soils is helpful in creating, improving, or maintaining suitable food, cover, and water for wildlife.



Figure 31.—A feral hog on the sand sheet. Feral hogs have no known predators and reproduce at a high rate. They destroy pastures, roads, and crops by digging for food.



Figure 32.—A coyote on an area of Sauz loamy fine sand, 0 to 1 percent slopes. Coyotes are one of the predator species on the Sand sheet Prairie.

Most wildlife habitat is created or managed by planting suitable vegetation, by increasing the extent of existing vegetation, or improving its quality, or by a combination of these measures. The influence that most soils have on plants is known or can be inferred from knowledge of soil characteristics. Soil information is also useful in selecting sites for creating or improving water areas for wildlife.

Proper management of wildlife habitat is important. Areas of grain sorghum provide food for quail, turkey, and dove. Small grain can provide food for deer, geese, and sand hill cranes if suitable cover is nearby. Leaving crop residues on the surface can provide food for numerous species of wildlife. Cover can be provided by leaving brush in fence rows. Disking field borders can greatly improve the food supply available in pastures. Brush left in selected locations provides food and cover for both birds and mammals.

Proper management of habitat for rangeland wildlife includes several rangeland management practices. Prescribed grazing, including proper stock numbers and rest from grazing can increase the food supply available to wildlife. A good herbaceous cover can provide cover for quail and turkey and fawning areas for deer. If allowed to mature, many grasses and native forbs will provide seed for dove, quail, and turkey.

Proper brush management can be extremely important for wild species. If brush is cleared or manipulated in strips, blocks, or other patterns, a much more diverse food source and habitat is created for various species of wildlife. Other measures that can improve wildlife habitat include disking, burning, planting food plots, range planting, and establishment of water sources.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

Table 13, Table 14, Table 15, Table 16, and Table 17 described in this section, show the degree and kind of soil limitations that affect various kinds of habitat for wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting areas for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the element or kind of habitat. *Not limited* indicates that the soil has features that are very favorable for the element or kind of habitat. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Creating, improving, or maintaining habitat is impractical or impossible.

Numerical ratings in the tables indicate the severity of individual limitations.

The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The elements of wildlife habitat are described in the following paragraphs:

Ratings for *grain and seed crops for food and cover* can be used in the selection of sites that have the soil properties and plant species necessary to sustain wildlife habitat. The ratings do not reflect the limitation for commercial agronomic production.

The soil properties and features that affect the growth of grain and seed crops are soil texture, content of organic matter, the amount of rock fragments on or near the soil surface, available water capacity, depth to bedrock or a cemented pan, soil moisture and temperature regimes, depth to a high water table, ponding, flooding, permeability of the soil surface, slope, presence of excess salts in the soil, and susceptibility of the soil surface to water erosion and wind erosion. Examples of grain and seed crops are corn, milo, wheat, and oats.

Ratings for *domestic grasses and legumes for food and cover* can be used in the selection of sites that have the soil properties and plant species necessary to sustain wildlife habitat. The ratings do not reflect the limitations for commercial agronomic production. The soil properties and features that affect the growth of grasses and legumes are soil texture, content of organic matter, the amount of rock fragments on or near the soil surface, available water capacity, depth to bedrock or a cemented pan, soil moisture and temperature regimes, depth to a high water table, ponding, flooding, permeability of the soil surface, slope, presence of excess salts in the soil, and susceptibility of the soil surface to water erosion and wind erosion, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are kleingrass, blue panicum, Wilman lovegrass, bundleflower, and bur clover.

Ratings for *irrigated grain and seed crops for food and cover* can be used in the selection of sites that have the soil properties and plant species necessary to sustain wildlife habitat. The ratings do not reflect the limitations for commercial agronomic production. The soil properties and features that affect the growth of grain and seed crops are soil texture, content of organic matter, the amount of rock fragments on or near the soil surface, available water capacity, depth to bedrock or a cemented pan, depth to a high water table, ponding, flooding, permeability of the soil surface, slope, presence of excess salts in the soil, and susceptibility of the soil surface to water erosion and wind erosion. Examples of grain and seed crops are corn, grain sorghum, wheat, oats, and soybeans.

Ratings for *irrigated domestic grasses and legumes for food and cover* can be used in the selection of sites that have the soil properties and plant species necessary to sustain wildlife habitat. The ratings do not reflect the limitations for commercial agronomic production. The soil properties and features that affect the growth of grasses and legumes are soil texture, content of organic matter, the amount of rock fragments on or near the soil surface, available water capacity, depth to bedrock or a cemented pan, depth to a high water table, ponding, flooding, permeability of the soil surface, slope, presence of excess salts in the soil, and susceptibility of the soil surface to water erosion and wind erosion. Examples of grasses are kleingrass, yellow bluestem, Eastern gamagrass, and switchgrass; examples of legumes are clover, vetch, and soybean.

Ratings for *habitat for burrowing mammals and reptiles* indicate the limitation of the soil for maintaining or increasing local populations of specific burrowing animals. The soil properties and features that affect the preservation of these species are flooding, ponding, depth to bedrock or a cemented pan, depth to a high water table, sandy layers, clayey layers, a high content of organic matter, and high concentrations of rock fragments. Examples of burrowing mammals and reptiles are gophers, badgers, lizards, rattlesnakes, and bull snakes.

Ratings for *upland native herbaceous plants* indicate the limitation of the soils as a growing medium for a diverse upland herbaceous plant community. This community is adapted to soils that are drier than the common soils in moist riparian and wetland zones but that are not as dry as the soils in upland desert areas. The soil properties and features that affect the ability of these species to thrive include soil texture, available water capacity, the presence of excess salts in the soil, soil moisture and temperature regimes, depth to a high water table, and rock fragments

on the soil surface. Examples of wild herbaceous plants are bluestem, trichloris, bristlegass, sideoats grama, western ragweed, bundleflower, and croton.

Ratings for *riparian herbaceous plants* indicate the limitation of the soils as a growing medium for herbaceous plants that are adapted to soil conditions that are wetter than those common in the drier upland areas. The soils suitable for this habitat generally are on flood plains, in depressions, on bottomland, in drainageways adjacent to streams, or in any other area where the soil is either saturated for some period during the year or is subject to periodic overflow from ponding or flooding. The soil properties and features that affect the ability of riparian herbaceous plants to persist include soil texture, content of organic matter, depth to a high water table, the frequency and duration of ponding and flooding, the presence of excess salts in the soil, rock fragments, and the soil temperature regime. Examples of riparian herbaceous plants are Virginia wildrye, Eastern gamagrass, switchgrass, whitegrass, broadleaf woodoats, switch cane, ice plant, mist flower, and white clover.

Ratings for *riparian shrubs, vines, and trees* indicate the limitation of the soils as a growing medium for shrubs, vines, and trees that are adapted to soil conditions that are wetter than those common in the drier upland areas. The soils suitable for this habitat generally are on flood plains, in depressions, on bottomland, in drainageways adjacent to streams, in areas of springs and seeps, or in any other area where the soil is either saturated for some period during the year or is subject to periodic overflow from ponding or flooding. The soil properties and features that affect the ability of riparian shrubs, vines, and trees to persist include available water capacity, depth to a high water table, the frequency and duration of ponding and flooding, the presence of excess salts in the soil, and the soil temperature regime. Examples of riparian shrubs, vines, and trees are cottonwood, willow, green ash, hackberry, burr oak, cedar elm, hawthorne, poison ivy, trumpet creeper, greenbriar, and grape.

Ratings for *freshwater wetland plants* indicate the limitation of the soils as a growing medium for plants that are adapted to wet soil conditions. The soils suitable for this habitat generally are in marshes, in depressions, on bottomland, in backwater areas on flood plains, in drainageways adjacent to streams, in areas of springs and seeps, or in any other area where the soil is not directly affected by moving floodwater but may be ponded during some part of the year. The soil properties and features that affect the ability of freshwater wetland plants to persist include soil texture, content of organic matter, depth to a high water table, the frequency and duration of ponding, the presence of excess salts in the soil, and soil reaction (pH). Examples of freshwater wetland plants are smartweed, wild millet, cattails, cut grass, giant cane, rattle box, sesbania, rushes, sedge, and reeds.

Ratings for *irrigated freshwater wetland plants* for use as wildlife habitat interprets the soil as a medium for growing wetland herbaceous vegetation and shrubs that are adapted to wet soil conditions. Floating or submerged aquatics are excluded from use in the soil survey area. The purpose of the table is to identify soils that have the best probability for success in maintaining the existing, naturally established marginal wetlands or in establishing new wetlands, including mitigation to replace existing wetlands. It is accomplished through management practices for irrigation water and vegetation. The soils suitable for this habitat generally occur in areas of cropland, previously cropped areas, and odd or marginal areas associated with cropland and wetlands. Some areas may be subject to ponding for indefinite periods because of the accumulation of excessive moisture caused by runoff from the surrounding area. The plant species are predominantly hydrophytic and include some mesophytic plants that commonly occur on wetland sites. The adapted vegetation components are selected to meet specific local habitat requirements for targeted and non-targeted species of wildlife. The interpretation is intended to provide minimum guidelines for the selection of probable sites for the irrigation and management of freshwater wetland plants as wildlife habitat and not to reflect commercial or livestock grazing

values. The management, reestablishment, or introduction of freshwater herbaceous vegetation and shrubs to meet select wildlife habitat requirements is determined by a number of factors. The factors are landscape, climate, soil, vegetation, and time. A limitation caused by any one of these factors can influence the adaptability, survival, growth, and vigor of the freshwater wetland plants as wildlife habitat.

Ratings for *saline water wetland plants* for use as wildlife habitat interprets the soil as a medium for growing saline-tolerant wetland herbaceous vegetation and shrubs that are adapted to wet soil conditions. Floating or submerged aquatics are excluded from use in this soil survey area. The soils suitable for this habitat generally occur in saline-sodic affected areas adjacent to springs, seeps, depressions, bottom lands, and marshes or in the backwater areas of flood plains, such as oxbow lakes, that are not directly affected by moving floodwaters. Many areas are ponded for some period of time because of the accumulation of excessive moisture caused by runoff from the surrounding area. Planning and management is better directed towards enhancing or propagating existing species that are adapted to the saline-sodic soil conditions of the site and that meet a desired habitat need. The adapted vegetation components are selected to meet specific local habitat requirements for targeted and non-targeted species of wildlife. The interpretation is intended to provide minimum guidelines for the selection of saline sites for growing and managing saline-tolerant herbaceous vegetation and shrubs as wildlife habitat and not to reflect commercial or livestock grazing values. The management, reestablishment, or introduction of saline-tolerant wetland species to meet select wildlife habitat requirements is determined by a number of factors. The factors are landscape, climate, soil, vegetation, hydrology, and time. A limitation caused by any one of these factors can influence the adaptability, survival, growth, and vigor of saline-wetland species. The guide addresses only those factors that relate primarily to the soil. It identifies the limitation and the soil restricting features that will have the most affect on the use of saline-tolerant wetland plants as wildlife habitat. The soil properties and qualities important in establishment and growth of saline water wetland plants are wetness, low sodium and salt content, surface texture, pH, ponding, and high organic matter content.

Ratings for *irrigated saline water wetland plants* for use as wildlife habitat interprets the soil as a medium for growing saline-tolerant wetland herbaceous vegetation and shrubs that are adapted to wet soil conditions. Floating or submerged aquatics are excluded from use in this guide. The purpose of the guide is to identify soils that have the best probability for success in maintaining the existing, naturally established, saline water marginal wetlands or in establishing new saline water wetlands, including mitigation to replace existing wetlands. It is accomplished by managing irrigation water and by planting saline-tolerant vegetation. The soils suitable for this habitat generally occur in saline-sodic affected areas of cropland, previously cropped areas, odd areas associated with cropland, wildlands, and marginal areas associated with existing wetlands that are not directly affected by moving floodwaters. Not included are sites that are wet because of past irrigation and management practices. Some areas may be subject to ponding for indefinite periods because of the accumulation of excessive moisture caused by runoff from the surrounding area. This interpretation is intended to provide minimum guidelines for the selection of probable sites for the irrigation and management of saline-tolerant herbaceous vegetation and shrubs as wetland wildlife habitat and not to reflect commercial or livestock grazing values. The management, reestablishment, or introduction of saline-tolerant herbaceous vegetation and shrubs to meet select wildlife habitat requirements is determined by a number of factors. The factors are landscape, climate, soil, vegetation, and time. A limitation caused by any one of these factors can influence the adaptability, survival, growth, and vigor of the saline water wetland plants as wildlife habitat. The soil properties and qualities important in establishment and growth of irrigated saline water wetland plants are wetness, low sodium and salt content, surface texture, pH, ponding, slope, permeability, and high organic matter content.

Hydric Soils

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). The criteria are used to identify a phase of a soil series that normally is also a hydric soil. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2003) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they generally exhibit certain properties that can be observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1998).

For information regarding hydric soils in the soil survey area, refer to the USDA Natural Resources Conservation Service Soil Data Mart at <http://soildatamart.nrcs.usda.gov>.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is Not site specific and does Not eliminate the Need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface,

soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 18 and Table 19, described in this section, show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect

the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Table 20 and Table 21, described in this section, show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can

be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Groundwater contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of groundwater pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 22 and Table 23, described in this section, show information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table "Source of Gravel and Sand," only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are the factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good*, *fair*, or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

In Table 23, the rating class terms are *good*, *fair*, and *poor*. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, and topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and

spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 24, described in this section, shows information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a groundwater aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 25, described in this section, shows the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to

20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table R.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Soil Properties

Table 26, described in this section, shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle-size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle-sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle-size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the

soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (Ksat) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Soil Properties

Table 27, described in this section, shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of groundwater pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is

influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 29, described in this section, shows estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep or very deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep to very deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 29 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most

years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 29 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 29, described in this section, shows estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the *hardness* and *thickness* of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution,

acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For *uncoated steel*, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For *concrete*, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Physical, Chemical, and Clay Mineralogy Analyses of Selected Soils

The results of physical analysis of several typical pedons in the survey area are shown in Table 30, the results of chemical analysis in Table 31, the results of clay mineralogy are shown in Table 32, and the results of optical grain counts are shown in Table 33. The data are for soils sampled at carefully selected sites. Unless otherwise indicated, the pedons are typical of the series. They are described in the section "Soil Series and Their Morphology." Soil samples were analyzed by USDA-NRCS, National Soil Survey Laboratory at Lincoln, Nebraska, and the Soil Characterization Laboratory, Texas AgriLife Research, College Station, Texas.

Depth to the upper and lower boundaries of each layer is indicated.

Most determinations, except those for grain-size analysis and bulk density, were made on soil material smaller than 2 millimeters across. Measurements reported as percent or quantity of unit weight were calculated on an oven-dry basis. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods (USDA, 1996).

Sand—(0.05-to 2.0-millimeter fraction) weight percentages of material less than 2 millimeters (3A1).

Silt—(0.002 to 0.05-millimeter fraction) pipette extraction, weight percentages of all material less than 2 millimeters (3A1).

Clay—(fraction less than 0.002 millimeters) pipette extraction, weight percentages of material less than 2 millimeters (3A1).

Coefficient of linear extensibility—change in clod dimension based on whole soil (3D4).

Bulk density—of less than 2 millimeter material, saran-coated clods field moist (3B1a), 1/3 bar (3B1b), oven-dry (3B1c).

Water retained—pressure extraction, percentage of oven-dry weight of less than 2 millimeter material; 1/3 or 1/10 bar (3C1), 15 bars (3C2).

Organic carbon—wet combustion. Walkley-Black modified acid-dichromate, ferric sulfate titration (6A1c, obsolete).

Reaction (pH)—1:1 water dilution (4C1a2a1).

Extractable bases—Ca, Mg, K, Na.

Extractable cations—ammonium acetate pH 7.0, ICP; calcium (6N2e, 6N2f), magnesium (6O2d, 6O2e), sodium (6P2b, 6P2c), potassium (6Q2b, 6Q2c).

Base saturation—ammonium acetate, pH 7.0 (5C1).

Exchangeable sodium percentage, ESP (5E).

Sodium adsorption ratio (4F3b).

Electrical conductivity—saturation extract (4F2b1).

X-ray diffraction-thin film on glass, resin pretreatment II (7A2i).

Optical Grain Count—(7B1a).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 34 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in sol. An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Ustoll (Ust, meaning burnt, plus oll, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplustolls (Hapl, meaning minimal horizonation, plus ustolls, the suborder of the Mollisols that has an Ustic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective Lithic identifies the subgroup that typifies the great group. An example is Lithic Calcicustolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is clayey-skeletal, smectitic, thermic Lithic Haplustolls.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is Aransas.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil that is typical of the series in the survey area is described. The typifying pedons described below are not exclusively located within the boundaries of the survey area, but are typical pedons in the MLRA survey area of which Kenedy and Kleberg Counties are a part. The

detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series. Although the map unit surface texture phase may be different from that of the typical pedon of the series, it does fall within the range of characteristics for the series. Soil interpretations are based on map units in the survey area.

Aransas Series

The Aransas series consists of very deep, poorly drained, very slowly permeable soils that formed in clayey alluvial sediments of Holocene age. These nearly level soils are on flood plains on the south Texas coastal plain. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 33 inches.

Taxonomic Class

Fine, smectitic, hyperthermic Typic Natraquerts

Typical Pedon

Aransas clay, on a nearly level flood plain in rangeland at an elevation of 10 feet.

- A1—0 to 11 inches; very dark gray (10YR 3/1) clay; dark gray (10YR 4/1) dry; moderate very fine and fine granular structure; hard, firm, moderately sticky, moderately plastic; many fine roots; many fine pores; few wormcasts; slightly saline; strongly effervescent; neutral; clear smooth boundary.
- A2—11 to 24 inches; very dark gray (10YR 3/1) clay; dark gray (10YR 4/1) dry; moderate medium and fine subangular and angular blocky structure; very hard, very firm, moderately sticky, moderately plastic; common fine roots; common fine pores; 1 percent very fine threads and masses of calcium carbonate in matrix; slightly saline, strongly effervescent, moderately alkaline; gradual wavy boundary.
- Bkss—24 to 35 inches; very dark gray (10YR 3/1) clay; dark gray (10YR 4/1) dry; moderate medium wedge structure parting to moderate fine and medium angular blocky; extremely hard, extremely firm, moderately sticky, moderately plastic; few fine roots; few very fine pores; few faint slickensides; 2 percent fine nodules of calcium carbonate; 1 percent fine weakly cemented iron-manganese concretions; moderately saline; strongly effervescent; moderately alkaline; gradual wavy boundary.
- Bkssz1—35 to 44 inches; grayish brown (10YR 5/2) clay, light brownish gray (10YR 6/2), dry; moderate medium wedge structure parting to weak fine and medium subangular blocky; extremely hard, very firm, moderately sticky, moderately plastic; few very fine pores; common distinct slickensides; 3 percent fine and medium masses and nodules of calcium carbonate; 1 percent fine weakly cemented iron-manganese concretions; 1 percent fine crystals of salt; moderately saline; strongly effervescent; strongly alkaline; gradual wavy boundary.
- Bkssz2—44 to 53 inches; grayish brown (10YR 5/2) clay, light brownish gray (10YR 6/2), dry; moderate medium wedge structure parting to weak fine and medium subangular blocky; extremely hard, very firm, moderately sticky, moderately plastic; few very fine pores; common distinct slickensides; 3 percent fine nodules of calcium carbonate; 1 percent fine weakly cemented iron-manganese concretions; 2 percent fine crystals of salt; strongly saline; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bssz—53 to 70 inches; 60 percent grayish brown (10YR 5/2) and 40 percent brown (10YR 5/3) clay, light brownish gray (10YR 6/2) and pale brown (10YR 6/3) dry; moderate medium wedge structure parting to weak fine and medium subangular blocky; extremely hard, very firm, moderately sticky, moderately plastic; few very fine pores; common distinct slickensides; 1 percent fine weakly cemented dark iron-manganese concretions; 1 percent fine crystals of salt; strongly saline; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bz—70 to 80 inches; brown (10YR 5/3) clay, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; extremely hard, very firm, moderately sticky, moderately plastic; few very fine pores; 1 percent fine crystals of salt; strongly saline; strongly effervescent; moderately alkaline.

Type Location

San Patricio County, Texas; from the intersection of U.S. Highway 181 and U.S. Highway 77 on the east side of Sinton, 7.4 miles northeast on U.S. Highway 77 to the Rob and Bessie Welder Wildlife Refuge, 6.5 miles east of refuge headquarters on private road to Yegua tank, and 200 feet south of Yegua Tank in Mare Pasture in rangeland. Rincon Bend, Texas USGS topographic quadrangle; NAD 83; Latitude: 28 degrees, 7 minutes, 16.9 seconds, North; Longitude: 97 degrees, 15 minutes, 56.1 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime.
Depth to secondary carbonates: 13 to 25 inches
Depth to salt accumulations: 13 to 25 inches
Depth to redox concentrations: 13 to 25 inches
Depth to slickensides: 13 to 25 inches
COLE: Ranges from 0.09 to 0.22
Particle-size control section (weighted average):
Clay content: 45 to 55 percent

A horizon

Hue: 10YR
Value: 2 or 3
Chroma: 1
Texture: Clay loam or clay
Clay content: 36 to 50 percent
EC (dS/m): 1 to 6
SAR: 4 to 27
Effervescence: None to strong
Reaction: Neutral to moderately alkaline

Bkss and Bss horizons

Hue: 10YR
Value: 2 to 5
Chroma: 1 to 3
Texture: Clay
Clay content: 40 to 60 percent
Redox concentrations: Amount—0 to 2 percent; size—fine; contrast—faint to prominent; boundary—clear or gradual
EC (dS/m): 3 to 25
SAR: 15 to 40
Effervescence: Slight to strong
Reaction: Slightly alkaline to strongly alkaline

Bz horizon

Hue: 10YR or 2.5Y

Value: 4 to 7

Chroma: 1 to 3

Texture: Clay loam or clay

Clay content: 30 to 55 percent

EC (dS/m): 4.5 to 18

SAR: 15 to 40

Effervescence: Slight to strong

Reaction: Slightly alkaline or moderately alkaline

Arenisco Series

The Arenisco series consists of very deep, excessively drained, rapidly permeable soils that formed in sandy eolian sediments of Holocene age. These soils are on nearly level to gently undulating, vegetated lag dunes on the south Texas coastal plain. Slope ranges from 0 to 5 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Mixed, hyperthermic Typic Ustipsamments

Typical Pedon

Arenisco fine sand, in complex with Lopeno and Potrero soils in rangeland at an elevation of 21 feet (fig. 33).

A1—0 to 10 inches; brown (10YR 4/3) fine sand, brown (10YR 5/3), dry; single grain; loose, loose; common fine and many very fine roots; neutral; gradual smooth boundary.

A2—10 to 35 inches; brown (10YR 4/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose, loose; common very fine and fine roots; silt coats and 2 percent carbonate coats; neutral; clear smooth boundary.

C1—35 to 48 inches; brown (10YR 5/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose, loose; common very fine and fine roots; neutral; clear smooth boundary.

C2—48 to 64 inches; very pale brown (10YR 7/3) fine sand, very pale brown (10YR 8/3) dry; single grain; loose, loose; common very fine and fine roots; 1 percent fine distinct yellowish brown (10YR 5/8), moist, and 3 percent fine distinct brownish yellow (10YR 6/6) iron concentrations with sharp boundaries; neutral; gradual smooth boundary.

C3—64 to 80 inches; pale brown (10YR 6/3) fine sand, very pale brown (10YR 8/3) dry; single grain; loose, loose; common very fine and fine roots; 3 percent fine distinct yellowish brown (10YR 5/8) and yellowish brown (10YR 5/6) iron concentrations with sharp boundaries; slightly alkaline.

Type Location

Kenedy County, Texas; from the intersection of La Parra Avenue and U.S. Highway 77 in Sarita, 4.8 miles south on U.S. Highway 77 to ranch gate 4.95 miles east on ranch road, 1.3 miles south and southeast on ranch road, 0.9 mile southeast on ranch road, and 2,700 feet in rangeland. La Parra Ranch, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 07 minutes, 46.82 seconds, North; Longitude: 97 degrees, 41 minutes, 31.87 seconds, West.



Figure 33.—Profile of Arenisco fine sand, in an area of Lopeno-Potrero-Arenisco complex, 0 to 5 percent slopes. A krotovina, or animal burrow, is located at a depth of 5 feet. (Scale in CM-centimeters, and FT-feet)

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 days cumulative in normal years. The soil moisture control section is also either moist in some or all parts for 180 cumulative days or more or moist for 90 or more consecutive days in normal years. June through September are the driest months. A water table is present in most pedons at depths of 40 to 80 inches in most years from October to May.

Depth to redox concentrations: 40 to 80 inches

Particle-size control section (weighted average):

Clay content: 1 to 5 percent

Sand content: 91 to 97 percent

A1 horizon

Hue: 10YR

Value: 3 to 5 moist, 5 or 6 dry

Chroma: 2 to 4

Texture: Fine sand

Clay content: 0.5 to 6 percent

EC (dS/m): 0.1 to 2.0

SAR: 0.1 to 9.0

Reaction: Slightly acid to slightly alkaline

A2 horizon

Hue: 10YR

Value: 4 to 6 moist, 6 or 7 dry

Chroma: 2 to 4

Texture: Fine sand

Clay content: 0.5 to 6 percent

EC (dS/m): 0.1 to 2.0

SAR: 0.1 to 9.0

Reaction: Slightly acid to slightly alkaline

C1 and C2 horizons

Hue: 10YR

Value: 5 to 7 moist, 6 to 8 dry

Chroma: 2 to 4

Texture: Fine sand

Clay content: 1 to 5 percent

Redox concentrations: Amount—0 to 5 percent; size—fine; contrast—distinct or prominent; boundaries—sharp; shades—brown or yellow

EC (dS/m): 0.1 to 0.6

SAR: 0.1 to 6.0

Reaction: Slightly acid to moderately alkaline

C3 and C4 horizons (where present)

Hue: 10YR

Value: 5 to 7 moist, 6 to 8 dry

Chroma: 2 to 4

Texture: Fine sand

Clay content: 1 to 4 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—distinct to prominent; boundaries—diffuse to sharp; shades—brown

EC (dS/m): 0.1 to 2.0

SAR: 0.1 to 6.0

Reaction: Slightly acid to moderately alkaline

Arrada Series

The Arrada series consists of very deep, poorly drained, moderately slowly permeable soils on wind tidal flats. These soils formed in extremely saline loamy alluvial sediments of Holocene age. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Fine-loamy, mixed, semiactive, calcareous, hyperthermic Typic Halaquepts

Typical Pedon

Arrada sandy clay loam, on a nearly level 0 to 1 percent slope on a wind tidal flat at an elevation of 2 feet above sea level.

Anzg—0 to 5 inches; gray (5Y 5/1) sandy clay loam, gray (5Y 6/1) dry; weak medium platy structure; slightly hard, friable; 50 percent medium platy salt masses; 3 percent fine and medium distinct light olive brown (2.5Y 5/4) masses of oxidized iron with sharp boundaries lining pores and between plates; strongly saline; strongly effervescent; strongly alkaline; abrupt smooth boundary.

- Bnzc1—5 to 16 inches; gray (5Y 5/1) sandy clay loam, gray (5Y 6/1) dry; weak medium prismatic structure parting to weak fine and medium subangular blocky; slightly hard, friable; 2 percent fine calcium carbonate nodules; 2 percent salt masses; strongly effervescent; 2 percent medium prominent dark brown (10YR 3/3) masses of oxidized iron with diffuse boundaries in the matrix; strongly saline; strongly effervescent; strongly alkaline; clear smooth boundary.
- Bnzc2—16 to 32 inches; gray (5Y 5/1) sandy clay loam, gray (5Y 6/1) dry, weak medium and coarse subangular blocky structure; slightly hard, friable; 2 percent black iron-manganese concretions; 1 percent fine distinct light olive brown (2.5Y 5/4) masses of oxidized iron with diffuse boundaries in the matrix; strongly saline; strongly effervescent; strongly alkaline; clear smooth boundary.
- BCnzc1—32 to 54 inches; light gray (5Y 7/2) sandy clay loam, pale yellow (5Y 8/2) dry; weak medium and coarse subangular blocky structure; slightly hard, friable; 1 percent fine calcium carbonate nodules; 20 percent medium prominent yellowish brown (10YR 5/6) masses of oxidized iron with clear boundaries in the matrix; strongly saline; violently effervescent; strongly alkaline; clear smooth boundary.
- BCnzc2—54 to 80 inches; greenish gray (5GY 6/1) sandy clay loam, light greenish gray (5GY 7/1) dry; weak fine and medium subangular blocky structure; slightly hard, friable; 1 percent fine nodules of calcium carbonate; strongly saline; violently effervescent; strongly alkaline.

Type Location

Willacy County, Texas; from the intersection of U.S. Highway 77 bypass and Texas Highway 186 in Raymondville, 16.3 miles east on Texas Highway 186 to Farm Road 497, 16.3 miles east on Farm Road 497 to Farm Road 606 in Port Mansfield, 0.8 mile north on Farm Road 606 to end of road, 0.5 mile west along fence line, and 100 feet south on wind tidal flat; Port Mansfield, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 34 minutes, 11.7 seconds, North; Longitude: 97 degrees, 26 minutes, 14.5 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. Although rainfall amounts are that of an Ustic soil moisture regime, these soils remain saturated throughout in most years because of the location on the landscape. The top of a permanent water table is at a depth of 12 to 24 inches throughout the year in normal years, and the soil is subject to frequent flooding by high tides, storm surges or heavy rains associated with tropical storms.

Mean annual air soil temperature: 74 to 76 degrees F

EC (dS/m): 60 to 175

SAR: 60 to 125

Depth to masses of oxidized iron: 0 to 10 inches

Depth to iron depletions or depleted matrix: 0 to 10 inches

Depth to endosaturation: 2 to 36 inches

Depth to salic horizon: 4 to 16 inches

Particle-size control section (weighted average):

Clay content: 18 to 27 percent

Sand content: 60 to 80 percent

CEC/Clay ratio: 0.24 to 0.40 (semiactive)

Anzg horizon

Hue: 2.5Y or 5Y

Value: 4 to 6, 5 to 7 dry

Chroma: 1 or 2

Texture: Fine sandy loam or sandy clay loam

Clay content: 11 to 32 percent

Redox concentrations: Amount—1 to 15 percent; size—fine or medium; contrast—faint to prominent; boundaries—clear or sharp; shades—brown or yellow

Redox depletions: Amount—0 to 7 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray

Effervescence: Moderate or strong

Reaction: Slightly alkaline to very strongly alkaline

Bnzg horizon

Hue: 2.5Y, 5Y, 10Y, or 10GY

Value: 4 to 7, 5 to 8 dry

Chroma: 1 or 2

Texture: Fine sandy loam or sandy clay loam (textures are variable, and can be stratified with loamy fine sand)

Clay content: 14 to 32 percent

Redox concentrations: Amount—1 to 25 percent; size—fine or medium; contrast—faint or distinct; boundaries—diffuse to sharp; shades—brown or yellow

Redox depletions: Amount—1 to 20 percent; size—fine or medium; contrast—faint; boundary—diffuse or clear; shades—gray

Effervescence: Moderate or strong

Reaction: Slightly alkaline to very strongly alkaline

BCnzg horizon

Hue: 5Y, 10Y, 5GY, or 10GY

Value: 4 to 7, 5 to 8 dry

Chroma: 1 or 2

Texture: Loamy fine sand, fine sandy loam, or sandy clay loam

Clay content: 9 to 25 percent

Redox concentrations: Amount—0 to 20 percent; size—fine or medium; contrast—faint to prominent; boundaries—clear or sharp; shades—brown or yellow

Redox depletions: Amount—1 to 25 percent; size—fine to coarse; contrast—faint or distinct; boundary—diffuse or clear; shades—gray or green

Effervescence: Moderate to violent

Reaction: Slightly alkaline to very strongly alkaline

Atiras Series

The Atiras series consists of very deep, somewhat excessively drained, rapidly permeable soils. These soils formed in sandy eolian deposits of Holocene age over loamy Quaternary alluvium. These soils are on gently undulating eolian plains associated with vegetated longitudinal dunes on the Sand Sheet Prairie of the South Texas Coastal Plain. Slope ranges from 1 to 5 percent. Mean annual air temperature is about 73 degrees F, and mean annual precipitation is about 26 inches.

Taxonomic Class

Mixed, hyperthermic Typic Ustipsamments

Typical Pedon

Atiras fine sand, on a northeast facing, slightly convex, 1 percent slope, in complex with the Falfurrias and Medanito soils in rangeland at an elevation of 25 feet. (Colors are for dry soil unless otherwise stated.) (fig. 34).

- A1—0 to 8 inches; brown (10YR 4/3) fine sand, brown (10YR 5/3) dry; single grain; loose; 6 percent very fine and fine, and 1 percent coarse roots; moderately acid; gradual smooth boundary.
- A2—8 to 17 inches; brown (10YR 5/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose; 5 percent fine and medium, and 1 percent coarse roots; moderately acid; clear smooth boundary.
- C1—17 to 28 inches; brown (10YR 5/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose; 5 percent very fine and fine and 1 percent coarse roots; 3 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; moderately acid; gradual smooth boundary.
- C2—28 to 45 inches; light brownish gray (10YR 6/2) fine sand, light gray (10YR 7/2) dry; single grain; loose; 4 percent very fine and fine, and 1 percent coarse roots; 5 percent fine and medium distinct yellowish brown (10YR 5/8) masses of oxidized iron; slightly acid; gradual smooth boundary.
- C3—45 to 58 inches; light brownish gray (10YR 6/2) fine sand, light gray (10YR 7/2) dry; single grain; loose; 4 percent very fine and fine, and 1 percent medium roots; 2 percent fine distinct yellowish brown (10YR 5/4) and 1 percent fine distinct dark yellowish brown (10YR 4/6) masses of oxidized iron; slightly acid; very abrupt smooth boundary.
- 2Ab—58 to 61 inches; very dark grayish brown (10YR 3/2) fine sand, dark grayish brown (10YR 4/2) dry; upper inch of horizon is a very dark gray (10YR 3/1) band; weak fine and medium subangular blocky structure; slightly hard, very friable; 4 percent very fine and fine roots; 2 percent fine pores; 2 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron; slightly acid; clear smooth boundary.
- 2Bwb1—61 to 67 inches; dark grayish brown (10YR 4/2) loamy fine sand, light brownish gray (10YR 6/2) dry; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; hard; very friable; 2 percent very fine and fine roots; 2 percent fine pores; 5 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron; 10 percent fine black (10YR 2/1) iron-manganese masses; 1 percent fine pale brown (10YR 6/3) clean sand grains; 75 percent of prism faces covered with very dark gray (10YR 3/1) organic stains; slightly acid; clear smooth boundary.
- 2Bwb2—67 to 73 inches; grayish brown (10YR 5/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; hard, friable; 1 percent very fine and fine roots; 2 percent fine pores; 15 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; 1 percent fine light gray (10YR 7/2) clean sand grains; 75 percent of prism faces covered with very dark gray (10YR 3/1) organic stains; slightly sodic; neutral; gradual smooth boundary.
- 2Bwb3—73 to 80 inches; light brownish gray (2.5Y 6/2) loamy fine sand, light gray (2.5Y 7/2) dry; weak medium and coarse subangular blocky structure; hard, friable; 1 percent very fine and fine roots; 2 percent fine pores; 10 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; 1 percent fine black (10YR 2/1) iron-manganese masses; slightly sodic; neutral.

Type Location

Kenedy County, Texas; from the intersection of La Parra Avenue and U.S. Highway 77 in Sarita, 4.8 miles south on U.S. Highway 77 to ranch gate, 2.13 miles east on ranch road, 1.7 miles north and northeast on ranch road, 0.43 mile east on pipeline right-of-way, 500 feet southeast along fence line, and 150 feet west in rangeland. La Parra Ranch, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 10 minutes, 30.11 seconds, North; Longitude: 97 degrees, 44 minutes, 45.34 seconds, West.



Figure 34.—Profile of Atiras fine sand in an area of Falfurrias-Atiras-Medanito complex, 0 to 5 percent slopes. A thin buried A layer is at a depth of about 5 feet. (Scale in CM-centimeters, and FT-feet)

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90, but less than 150 cumulative days in normal years. The soil moisture control section is also either moist in some or all parts for 180 cumulative days or more, or moist for 90 or more consecutive days in normal years. November through April are the driest months, with a second low in July, while September is the wettest.

Depth to buried soil: 40 to 80 inches

Depth to redox concentrations: 16 to 30 inches

Particle-size control section (weighted average):

Clay content: 9 to 18 percent

Sand content: 80 to 86 percent

A horizon

Hue: 10YR

Value: 5 or 6

Chroma: 2 or 3

Texture: Fine sand

Clay content: 2 to 8 percent

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Moderately acid to neutral

Other features: The A2 horizon, where present, has value or chroma of one unit higher.

C horizon

Hue: 10YR

Value: 6 to 8

Chroma: 2 to 4

Texture: Fine sand

Clay content: 1 to 7 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundaries—clear or distinct; shades—brown or yellow

EC (dS/m): 0 to 2

SAR: 0 to 8

Reaction: Moderately acid to neutral

2Ab horizon

Hue: 10YR

Value: 3 to 5

Chroma: 2 or 3

Texture: Fine sand, loamy fine sand, or fine sandy loam

Clay content: 6 to 14 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundaries—clear or distinct; shades—brown

EC (dS/m): 0 to 2

SAR: 0 to 8

Reaction: Moderately acid to neutral

2Bwb1 horizon

Hue: 10YR

Value: 5 to 7

Chroma: 2 or 3

Texture: Loamy fine sand or fine sandy loam

Clay content: 9 to 18 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundaries—clear or distinct; shades—brown or yellow

Redox depletions: Amount—none or few; size—fine or medium; contrast—faint or distinct; boundaries—clear or distinct; shades—gray

EC (dS/m): 0 to 2

SAR: 3 to 8

Reaction: Moderately acid to slightly alkaline

2Bwb2 horizon

Hue: 10YR

Value: 5 to 7

Chroma: 2 to 4

Texture: Fine sandy loam

Clay content: 13 to 22 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundaries—clear or distinct; shades—brown or yellow

EC (dS/m): 0 to 2

SAR: 4 to 12

Reaction: Moderately acid to slightly alkaline

2Bwb3 horizon

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 2 to 4

Texture: Loamy fine sandy or fine sandy loam

Clay content: 10 to 18 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundaries—clear or distinct; shades—brown

Identifiable secondary carbonates: Amount—none or few; size—fine or medium; kind—masses or concretions

EC (dS/m): 0 to 2

SAR: 4 to 13

Reaction: Neutral or slightly alkaline

Baffin Series

The Baffin series consists of very deep, very poorly drained, moderately slowly permeable, and are permanently submersed soils that formed in slightly fluid sandy and loamy estuarine sediments. These nearly level soils are in shallow-water grass flats of bays and lagoons. Water depth is generally less than 4 feet. Slopes are 0 to 1 percent, but mostly less than 0.5 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Coarse-loamy, siliceous, active, calcareous, hyperthermic Sodic Hydraquents

Typical Pedon

Baffin sandy clay loam, on a smooth 0 percent slope, in a shoalgrass meadow, under 8 inches of water, near the transitional margin of the wind-tidal flats at an elevation of less than 0.5 feet.

Ag1—0 to 2 inches; dark greenish gray (5GY 3/1) sandy clay loam; weak fine platy structure; moderately fluid (n-value 1.0), soil flows easily between fingers and leaves a small residue in hand when squeezed; 2 percent very fine and fine roots; 2 percent fine tubular polychaete worm tunnels; 2 percent fine and medium faint greenish gray (5GY 5/1) iron depletions with diffuse boundaries in the matrix; strongly saline; SAR is about 50; strongly effervescent; slightly alkaline; clear smooth boundary.

Ag2—2 to 8 inches; greenish gray (5GY 5/1) fine sandy loam; weak fine platy structure; moderately fluid (n-value 1.0), soil flows easily between fingers and leaves a small residue in hand when squeezed; 3 percent very fine and fine roots; 4 percent fine and medium tubular polychaete worm tunnels; 4 percent fine and medium distinct dark greenish gray (5GY 3/1) and 1 percent fine and medium distinct dark greenish gray (5G 4/1) iron depletions with diffuse boundaries in the matrix; strongly saline; SAR is about 50; violently effervescent; slightly alkaline; clear smooth boundary.

Cg1—8 to 14 inches; greenish gray (5G 5/1) sandy clay loam; massive; moderately fluid (n-value 1.0), soil flows easily between fingers and leaves a small residue in hand when squeezed; 1 percent very fine and fine roots; 12 percent medium distinct greenish gray (10Y 5/1) iron depletions with clear boundaries in the matrix; 3 percent gravel-sized shell fragments; strongly saline; SAR is about 50; strongly effervescent; slightly alkaline; clear smooth boundary.

Cg2—14 to 23 inches; greenish gray (5GY 5/1) fine sandy loam; massive; moderately fluid (n-value 1.0), soil flows easily between fingers and leaves a small residue in hand when squeezed; 3 percent fine and medium faint greenish gray (5GY 5/1) iron depletions with diffuse boundaries in the matrix; 3 percent

- gravel-sized shell fragments; strongly saline; SAR is about 60; strongly effervescent; slightly alkaline; clear smooth boundary.
- Cg3—23 to 43 inches; greenish gray (5GY 5/1) fine sand; massive; non-fluid in natural state (n-value less than 0.7); 12 percent medium faint greenish gray (5G 5/1) and 3 percent fine and medium faint greenish gray (10Y 5/1) iron depletions with diffuse boundaries in the matrix; 3 percent gravel-sized shell fragments; strongly saline; SAR is about 50; strongly effervescent; slightly alkaline; clear smooth boundary.
- Cg4—43 to 63 inches; greenish gray (10Y 5/1) fine sand; massive; non-fluid in natural state (n-value less than 0.7); 3 percent medium distinct dark greenish gray (5GY 3/1) and 2 percent fine and medium faint greenish gray (5G 5/1) iron depletions with diffuse boundaries in the matrix; 1 percent gravel-sized shell fragments; strongly saline; SAR is about 60; slightly effervescent; neutral; gradual smooth boundary.
- Cg5—63 to 75 inches; dark gray (N 4/) fine sand; massive; non-fluid in natural state (n-value less than 0.7); 7 percent sand-size and 1 percent gravel-sized shell fragments; strongly saline; SAR is about 60; slightly effervescent; neutral; clear smooth boundary.
- Cg6—75 to 80 inches; dark gray (N 4/) fine sandy loam; massive; moderately fluid (n-value 1.0), soil flows easily between fingers and leaves a small residue in hand when squeezed; 20 percent medium distinct dark greenish gray (5GY 4/1) and 2 percent medium distinct dark greenish gray (5GY 3/1) iron depletions with diffuse boundaries in the matrix; 3 percent fine and medium distinct olive gray (5Y 4/2) iron depletions with clear boundaries in the matrix; 3 percent sand-size and 2 percent gravel-sized shell fragments; moderately saline; SAR is about 60; slightly effervescent; neutral.

Type Location

Kenedy County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties; 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore; 0.8 miles southwest on Park Road 22 to the intersection of Novillo and Bird Island Basin road; 2.1 miles west-northwest and north on Bird Island Basin road to boat ramp; 28.7 miles by boat generally west-southwest along the Gulf Intracoastal Waterway into the landcut to channel running east near the center of Potrero Grande; 0.6 mile east into channel; 1,100 feet south in a sparse shoalgrass meadow, in an area known locally as the Hole or the Graveyard. Potrero Cortado, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 05 minutes, 57.9 seconds, North; Longitude: 97 degrees, 26 minutes, 05.7 seconds, West.

Range in Characteristics

Soil moisture: These soils have Aquic conditions throughout at all times in normal years and have a preAquic soil moisture regime. In one or more horizons, at least 6 inches thick, the electrical conductivity of the water extracted from a saturated paste is more than 30 dS/m for more than 90 days in normal years.

Mean annual soil temperature: 74 to 76 degrees F

Depth to iron depletions or depleted matrix: 0 to 10 inches

Depth to endosaturation: Permanently submersed

n-Value: The soil in all subhorizons between 8 and 20 inches below the mineral soil surface flows easily between the fingers when squeezed and has an n-value of more than 0.7.

Particle-size control section (weighted average):

Clay content: 10 to 18 percent

Sand content: 65 to 85 percent

Coarse fragments: Consist of seashell and seashell fragments

Ag horizon

Hue: 5Y, 10Y, or 5GY

Value: 3 to 5

Chroma: 1

Texture: Sandy clay loam

Clay content: 20 to 30 percent

Redox depletions: Amount—5 to 20 percent, size—fine or medium, contrast—faint or distinct, boundary—diffuse or clear; shades—gray

Coarse fragments: 0 to 5 percent

EC (dS/m): 40 to 50

SAR: 35 to 70

Effervescence: Strong or violent

Reaction: Slightly alkaline or moderately alkaline

Ag2 horizon

Hue: 5Y, 10Y, or 5GY

Value: 3 to 5

Chroma: 1

Texture: Loamy fine sand or fine sandy loam

Clay content: 8 to 20 percent

Redox depletions: Amount—5 to 20 percent, size—fine or medium, contrast—faint or distinct, boundary—diffuse or clear; shades—gray

Coarse fragments: 0 to 5 percent

EC (dS/m): 40 to 50

SAR: 35 to 70

Effervescence: Strong or violent

Reaction: Slightly alkaline or moderately alkaline

Cg horizon

Hue: 5Y, 10Y, 5GY, 5G, or N

Value: 4 to 7

Chroma: 0 or 1

Texture: Textures are variable in fine sand, loamy fine sand, fine sandy loam, or sandy clay loam

Clay content: 8 to 28 percent

Redox depletions: Amount—3 to 20 percent, size—fine or medium, contrast—faint or distinct, boundary—diffuse or clear,, shades—gray

Coarse fragments: 0 to 10 percent

EC (dS/m): 35 to 85

SAR: 45 to 75

Effervescence: Slight to strong

Reaction: Neutral to moderately alkaline

Banquete Series

The Banquete series consists of very deep, moderately well drained, slowly permeable soils that formed in clayey fluviomarine sediments derived from the Beaumont Formation of Late Pleistocene-age. These nearly level soils are in open-ended shallow depressions and swales on flat plains on the South Texas Coastal Plain. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 29 inches.

Taxonomic Class

Fine, smectitic, hyperthermic Udic Haplusterts

Typical Pedon

Banquete clay, 0.2 percent slope in an area of Banquete clay, 0 to 1 percent slopes in pastureland; elevation is 100 feet. (Colors are for dry soil unless otherwise stated.)

A—0 to 6 inches; black (10YR 2/1) clay, black (10YR 2/1) dry; moderate medium subangular blocky structure; extremely hard, very firm; common very fine or medium roots; common very fine tubular pores; 2 percent faint pressure faces; 1 percent fine faint dark brown (10YR 3/3) iron-manganese masses with sharp boundaries lining pores; 1 percent wormcasts; neutral; clear wavy boundary.

Bss—6 to 21 inches; black (10YR 2/1) clay, black (10YR 2/1) dry; moderate medium and coarse prismatic structure parting to moderate medium wedge and moderate medium angular blocky; extremely hard, very firm; common very fine and fine roots; common very fine tubular pores; 20 percent faint slickensides tilted at 20 to 40 degrees from the horizontal; 25 percent distinct pressure faces; common cracks 5 to 25 mm in width; 2 percent fine faint dark brown (10YR 3/3) iron-manganese masses with sharp boundaries on faces of peds; 1 percent wormcasts; neutral; gradual wavy boundary.

Bkss1—21 to 28 inches; very dark gray (10YR 3/1) clay, dark gray (10YR 4/1) dry; moderate coarse prismatic structure parting to moderate medium and coarse wedge and moderate medium and coarse angular blocky; extremely hard, very firm; common very fine roots; common very fine tubular pores; 30 percent distinct slickensides tilted at 40 to 60 degrees from the horizontal; 35 percent distinct pressure faces; common cracks 5 to 20 mm in width; few cracks filled with black (10YR 2/1) clay; 10 percent fine distinct dark yellowish brown (10YR 4/4) iron-manganese masses with sharp boundaries on faces of peds; 7 percent fine nodules of calcium carbonate; 1 percent insect casts; strong effervescence; moderately alkaline; gradual wavy boundary.

Bkss2—28 to 35 inches; gray (10YR 5/1) clay, gray (10YR 5/1) dry; moderate coarse prismatic structure parting to moderate coarse wedge and moderate coarse angular blocky; extremely hard, very firm; common very fine roots; common very fine tubular pores; 30 percent distinct slickensides tilted at 20 to 40 degrees from the horizontal; 35 percent distinct pressure faces; common cracks 2 to 10 mm in width filled with dark gray (10YR 4/1) clay; 15 percent fine distinct dark yellowish brown (10YR 4/4) iron-manganese masses with sharp boundaries on faces of peds; 5 percent fine nodules of calcium carbonate; 1 percent insect casts; strong effervescence; moderately alkaline; gradual wavy boundary.

Bkss3—35 to 44 inches; gray (2.5Y 6/1) clay, gray (10YR 6/1) dry; moderate coarse angular blocky and moderate coarse wedge structure; extremely hard, very firm; common very fine roots; common very fine tubular pores; 35 percent distinct slickensides tilted at 20 to 40 degrees from the horizontal; 40 percent distinct pressure faces; common cracks 2 to 5 mm in width filled with dark gray (10YR 4/1) clay; 20 percent fine and medium distinct dark yellowish brown (10YR 4/4) iron-manganese masses with sharp boundaries on faces of peds; 3 percent fine nodules of calcium carbonate; 1 percent insect casts; strong effervescence; moderately alkaline; gradual wavy boundary.

Bk—44 to 56 inches; light gray (10YR 7/1) clay loam, light gray (2.5Y 7/1) dry; weak coarse subangular blocky structure; very hard, firm; many very fine roots; few very fine tubular pores; 10 percent fine and medium distinct dark yellowish brown (10YR 4/4) iron-manganese masses with sharp boundaries on faces of peds; 2 percent fine nodules of calcium carbonate; 1 percent fine masses of calcium

carbonate; 1 percent insect casts; violent effervescence; strongly alkaline; gradual wavy boundary.
2C—56 to 80 inches; pale yellow (2.5Y 8/2) loamy fine sand, white (5Y 8/1) dry; massive; friable, slightly hard; 1 percent insect casts; violent effervescence; strongly alkaline.

Type Location

Nueces County, Texas; from the intersection of Texas Highway 44 and Farm Road 70 in Agua Dulce, about 4 miles north on Farm Road 70 to private farm road, 0.40 mile east on private farm road, and 0.2 mile south in pasture. W. Agua Dulce, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 50 minutes, 13.90 seconds, North; Longitude 97 degrees, 53 minutes, 35.40 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime that borders on an Udic soil moisture regime. The soil moisture control section is from 4 to 12 inches below the soil surface. Desiccation cracks that are 2 inches or more wide through a thickness of over 10 inches stay open for less than 150 cumulative days per year. The period when cracks remain open is from June to August, when conditions are the driest.

Mean annual soil temperature: 72 to 74 degrees F

Depth to secondary calcium carbonate: 16 to 29 inches

Thickness of the mollic epipedon: 20 to 28 inches

Other features: These are cyclic soils comprised of microlows and microhighs. The distance from the center of the microlow to the highest point on the microhighs is from 5 to 8 feet. Microlows colors are typically lower in value and chroma and are noneffervescent. Microhighs are slightly to strongly effervescent.

Particle-size control section (weighted average):

Clay content: 35 to 50 percent

A horizon

Hue: 10YR

Value: 2 to 4

Chroma: 1 or 2

Texture: Clay loam or clay

Clay content: 35 to 50 percent

Effervescence: None to slight

Reaction: Neutral or slightly alkaline

Bss horizon

Hue: 10YR

Value: 2 or 3

Chroma: 1 or 2

Texture: Clay loam or clay

Clay content: 35 to 50 percent

Redox concentrations: Amount—2 to 10 percent; size—fine; contrast—faint or distinct; boundary—sharp; location—lining pores; shades—brown or yellow

Effervescence: None to strong

Reaction: Neutral or slightly alkaline

Bkss horizon

Hue: 10YR or 2.5Y

Value: 4 to 6

Chroma: 1 or 2

Texture: Clay loam or clay
Clay content: 35 to 50 percent
Redox concentrations: Amount—10 to 25 percent; size—fine or medium; contrast—faint or distinct; boundary—sharp; location—lining pores; shades—brown or yellow
Calcium carbonate equivalent: 1 to 5 percent
Identifiable secondary carbonate: Amount—2 to 15 percent; size—fine to coarse; kind—masses or nodules; location—in matrix
Effervescence: None to strong
Reaction: Slightly alkaline or moderately alkaline

Bk horizon

Hue: 10YR or 2.5Y
Value: 5 to 8
Chroma: 1 to 3
Texture: Clay loam or clay
Clay content: 30 to 45 percent
Redox concentrations: Amount—2 to 15 percent; size—fine or medium; contrast—faint or distinct; boundary—sharp; location—lining pores or in matrix; shades—brown or yellow
Calcium carbonate equivalent: 5 to 10 percent
Identifiable secondary carbonate: Amount—2 to 15 percent; size—fine to coarse; kind—masses or nodules; location—in matrix
Effervescence: Strong or violent
Reaction: Moderately alkaline or strongly alkaline

2C horizon

Hue: 10YR to 5Y
Value: 6 to 8
Chroma: 1 to 3
Texture: Loamy fine sand, fine sandy loam, or sandy clay loam
Clay content: 10 to 35 percent
Redox concentrations: Amount—0 to 5 percent; size—fine or medium; contrast—faint or distinct; boundary—sharp; location—lining pores or in matrix; shades—brown or yellow
Calcium carbonate equivalent: 0 to 5 percent
Identifiable secondary carbonate: Amount—0 to 5 percent; size—fine to coarse; kind—masses or nodules; location—in matrix
Effervescence: Strong or violent
Reaction: Moderately alkaline or strongly alkaline

Barrada Series

The Barrada series consists of very deep, very poorly drained, very slowly permeable soils that formed in saline, clayey over loamy alluvial and storm washover sediments of Holocene age. These nearly level soils are on wind tidal flats and in enclosed depressions. Slopes are 0 to 1 percent. The mean annual air temperature is about 73 degrees F, and the mean annual precipitation is about 32 inches.

Taxonomic Class

Fine, mixed, active, calcareous, hyperthermic Typic Halaquepts

Typical Pedon

Barrada clay, barren flat.

- Az—0 to 4 inches; dark grayish brown (10YR 4/2) clay, light brownish gray (10YR 6/2) dry; massive; very hard, very firm; very sticky and very plastic; strongly saline; slightly effervescent; strongly alkaline; abrupt smooth boundary.
- BCz1—4 to 25 inches; dark grayish brown (10YR 4/2) clay, light brownish gray (10YR 6/2) dry; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; very hard, very firm, very sticky and very plastic; common fine and medium prominent brownish yellow (10YR 6/6) masses of oxidized iron; common fine and medium distinct dark gray (5Y 4/1) iron depletions; few firm clay balls; strongly saline; slightly effervescent; strongly alkaline; diffuse smooth boundary.
- BCz2—25 to 52 inches; dark grayish brown (10YR 4/2) clay, light brownish gray (10YR 6/2) dry; weak coarse prismatic structure parting to medium and coarse subangular blocky; hard, firm, very sticky and very plastic; many coarse prominent dark gray (5Y 4/1) iron depletions; few very firm clay balls; few pockets of sand; strongly saline; slightly effervescent; strongly alkaline.
- 2BC—52 to 80 inches; grayish brown (10YR 5/2) silty clay loam, light gray (10YR 7/2) dry; massive; hard, very firm, sticky and plastic; many coarse prominent yellowish brown (10YR 5/8) masses of oxidized iron; many coarse prominent dark gray (10YR 4/1) iron depletions; strongly saline; strongly effervescent; strongly alkaline.

Type Location

Cameron County, Texas; from the intersection of Texas Highway 4 (Boca Chica Highway) and Farm Road 511 northeast of Brownsville Airport; 7.6 miles east on Texas Highway 4; 4.5 miles north on ranch road; 0.2 mile east on barren flat. Mouth of Rio Grande, Texas USGS topographic quadrangle; NAD1927; Latitude: 25 degrees, 59 minutes, 30 seconds North; Longitude: 97 degrees, 14 minutes, 30 seconds West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. The soil is saturated to the surface for periods of 4 to 6 months and is never dry at depths below about 12 inches in most years.

n-value: Below a depth of 20 inches, ranges from about 0.58 to 0.80

Depth to loamy materials: 36 to more than 50 inches

Particle-size control section (weighted average):

Clay: 45 to 60 percent

Shell fragments: 0 to 10 percent by volume

Az horizon

Hue: 10YR, 2.5Y, 5G, or 5GY

Value: 4 to 6

Chroma: 0 to 2

Texture: Sandy clay, silty clay, or clay

EC (dS/m): 30 to more than 100

SAR: 30 to more than 100

Effervescence: Slight or strong

Reaction: Strongly alkaline

BCz1 horizon

Hue: 10YR, 2.5Y, 5G, or 5GY

Value: 4 to 6

Chroma: 0 to 2

Texture: Sandy clay, silty clay, or clay

EC (dS/m): 30 to more than 100
SAR: 30 to more than 100
Effervescence: Slight or strong
Reaction: Strongly alkaline

2BC horizon

Hue: 10YR, 2.5Y, 5G, or 5GY
Value: 4 to 6
Chroma: 0 to 2
Texture: Stratified sandy clay loam, silty clay, or clay
EC (dS/m): 30 to more than 100
SAR: 30 to more than 100
Effervescence: Strong or violent
Reaction: Strongly alkaline

Bordas Series

The Bordas series consists of very deep, very poorly drained, moderately slowly permeable soils. These nearly level soils formed in sandy eolian deposits over loamy sediments in depressions of the Sand Sheet Prairie of the South Texas Coastal Plain. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 26 inches.

Taxonomic Class

Fine-loamy, mixed, active, hyperthermic Typic Albaqualfs

Typical Pedon

Bordas loamy fine sand, in a slightly concave depression with a 0 to 1 percent slope in rangeland at an elevation of 17 feet. (Colors are for dry soil unless otherwise stated.) (fig. 35)

- A1—0 to 8 inches; dark gray (10YR 4/1) loamy fine sand, gray (10YR 6/1) dry; weak fine subangular blocky structure parting to weak fine granular; soft, very friable; 5 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron; moderately acid; clear smooth boundary.
- A2—8 to 11 inches; grayish brown (10YR 4/2) loamy fine sand, gray (10YR 6/1) dry dark; weak fine subangular blocky structure parting to weak fine granular; soft, very friable; 3 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron; slightly acid; abrupt smooth boundary.
- Btg1—11 to 18 inches; very dark gray (10YR 3/1) sandy clay loam, dark grayish brown (10YR 4/2) dry; moderate coarse prismatic structure parting to moderate fine and medium angular blocky; many distinct clay films on vertical surfaces of peds; 5 percent fine and medium prominent yellowish brown (10YR 5/8) masses of oxidized iron; neutral; clear smooth boundary.
- Btg2—18 to 26 inches; light brownish gray (10YR 6/2) sandy clay loam, light gray (10YR 7/2) dry; moderate coarse prismatic structure parting to moderate fine and medium angular blocky; very dark gray (10YR 3/1) organic stains on vertical surfaces of peds; many distinct clay films on vertical faces of peds; 5 percent fine and medium prominent yellowish brown (10YR 5/8) masses of oxidized iron; neutral; clear smooth boundary.
- Btg3—26 to 41 inches; light gray (10YR 7/2) sandy clay loam, very pale brown (10YR 8/2) dry; moderate coarse prismatic structure parting to moderate fine and medium angular blocky; common distinct clay films on vertical faces of peds; dark gray (10YR 4/1) organic stains on vertical surfaces of peds; 5 percent fine and

medium prominent brownish yellow (10YR 6/8) and 2 percent fine and medium prominent brownish yellow (10YR 6/6) masses of oxidized iron; 1 percent iron-manganese nodules; 1 percent calcium carbonate masses; moderately alkaline; clear smooth boundary.

Btg4—41 to 70 inches; light gray (10YR 7/2) sandy clay loam, very pale brown (10YR 8/3) dry; moderate fine and medium subangular blocky; common distinct clay films on vertical surfaces of peds; 5 percent iron-manganese nodules; 5 percent fine and medium prominent yellowish brown (10YR 5/8) masses of oxidized iron; 1 percent calcium carbonate masses; strongly alkaline; gradual smooth boundary.

Btg5—70 to 80 inches; light gray (5Y 7/2) sandy clay loam, pale yellow (5Y 8/3) dry; moderate fine and medium subangular blocky; few faint clay films on vertical surfaces of peds; 4 percent iron-manganese nodules; 5 percent medium prominent greenish gray (10Y 5/1) iron depletions; 1 percent calcium carbonate masses; strongly alkaline.

Type Location

Kenedy County, Texas; from the intersection of La Parra Avenue and U.S. Highway 77 in Sarita, 30.15 miles south on U.S. Highway 77 to the ranch gate of the Norias Division of the King Ranch, 0.25 east on ranch road, 2.8 miles southeast on ranch road, 1.25 miles east on ranch road, 1,600 feet north on ranch road, and 100 feet west in depression in rangeland. Saltillo Well, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 45 minutes, 02 seconds, North; Longitude: 97 degrees, 43 minutes, 17 seconds, West.

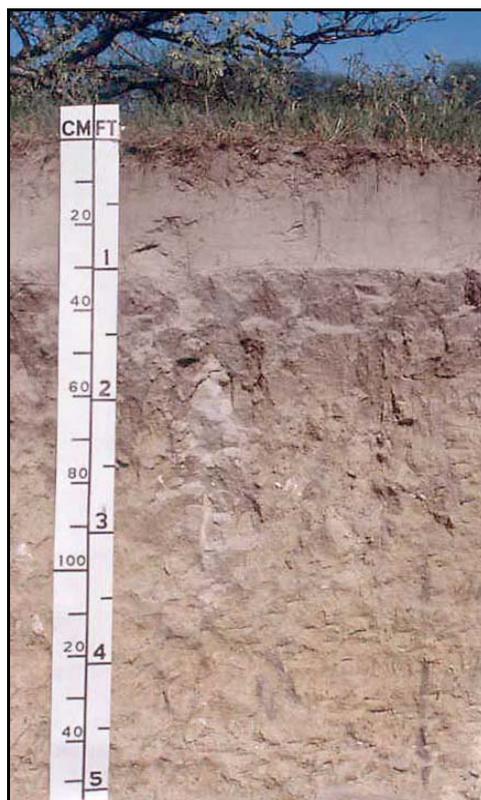


Figure 35.—Profile of Bordas loamy fine sand in an area of Bordas loamy fine sand, 0 to 1 percent slopes. Bordas soils have a loamy fine sand surface layer over a sandy clay loam subsoil. (Scale in CM-centimeters, and FT-feet)

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. The ground water fluctuates with the seasons, May through October are the wettest months, and November through April the driest months.

Depth to argillic horizon: 5 to 19 inches

Depth to secondary calcium carbonate: 35 to greater than 80 inches

Depth to redox concentrations: 0 to 19 inches

Depth to redox depletions or depleted matrix: 11 to 34 inches

Particle-size control section (weighted average):

Clay content: 22 to 33 percent

Sand content: 60 to 79 percent

CEC/clay ratio: 0.40 to 0.60

A horizon

Hue: 10YR

Value: 4 to 6

Chroma: 1 or 2

Texture: Fine sand, loamy fine sand, or fine sandy loam

Clay content: 3 to 16 percent

Redox concentrations: Amount—none to common; size—fine; contrast—faint or distinct; boundary—clear or distinct; shades—brown

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Strongly acid to slightly acid

E horizon (where present)

Hue: 10YR

Value: 5 or 6

Chroma: 1 or 2

Texture: Loamy fine sand, fine sandy loam, or less commonly fine sand

Clay content: 3 to 16 percent

Redox concentrations: Amount—none to common; size—fine; contrast—faint or distinct; boundary—clear or distinct; shades—brown

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Strongly acid to neutral

Btg1 horizon

Hue: 10YR

Value: 3 to 6

Chroma: 1 or 2

Texture: Sandy clay loam or less commonly fine sandy loam

Clay content: 18 to 35 percent

Redox concentrations: Amount—few or common; size—fine or medium; contrast—faint to prominent; boundary—clear or distinct

Redox depletions: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundary—clear or diffuse; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 8

Reaction: Slightly acid to moderately alkaline

Btg2 horizon

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 1 or 2

Texture: Sandy clay loam

Clay content: 22 to 35 percent

Redox concentrations: Amount—few to many; size—fine to coarse; contrast—distinct or prominent; boundary—clear or distinct; shades—brown

Redox depletions: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundary—clear or diffuse; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 8

Reaction: Neutral to moderately alkaline

Lower Btg horizons (Btg3, Btg4, and Btg5)

Hue: 10YR to 5Y

Value: 6 to 8

Chroma: 2 or 3

Texture: Sandy clay loam

Clay content: 22 to 35 percent

Redox concentrations: Amount—few to many; size—fine or medium; contrast—distinct or prominent; boundary—clear or distinct; shades—brown or yellow

Redox depletions: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundary—clear or diffuse; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 8

Reaction: Slightly alkaline to strongly alkaline

BCt horizon (where present)

Hue: 10YR, 2.5Y, or 5Y

Value: 6 to 8

Chroma: 2 or 3

Texture: Fine sandy loam or sandy clay loam

Clay content: 16 to 30 percent

Redox concentrations: Amount—few to many; size—fine or medium; contrast—distinct or prominent; boundary—clear or distinct

Redox depletions: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundary—clear or diffuse; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 8

Reaction: Moderately alkaline or strongly alkaline

Calallen Series

The Calallen series consists of very deep, well drained, moderately permeable soils that formed in loamy fluviomarine sediments in the Beaumont Formation of Late Pleistocene-age. These nearly level soils are on flats on the South Texas Coastal Plain. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 29 inches.

Taxonomic Class

Fine-loamy, mixed, superactive, hyperthermic Pachic Argiustolls

Typical Pedon

Calallen sandy clay loam, in cropland with a 0 to 1 percent slope; elevation is 75 feet. (Colors are for dry soil unless otherwise stated.)

- Ap—0 to 8 inches; very dark gray (10YR 3/1) sandy clay loam, dark gray (10YR 4/1) dry; weak fine and medium granular structure; slightly hard, very friable; common very fine or medium roots; common very fine and fine, and common medium tubular pores; noneffervescent; slightly alkaline; clear smooth boundary.
- Bt1—8 to 14 inches; very dark gray (10YR 3/1) sandy clay loam, very dark gray (10YR 3/1) dry; weak medium prismatic structure parting to weak medium subangular blocky; slightly hard, friable; common very fine roots; common very fine and fine tubular pores; 20 percent faint very dark gray (10YR 3/1) clay films on surfaces of peds; noneffervescent; slightly alkaline; clear wavy boundary.
- Bt2—14 to 26 inches; very dark gray (10YR 3/1) sandy clay loam, very dark gray (10YR 3/1) dry; moderate medium prismatic structure parting to moderate medium angular blocky; slightly hard, friable; common very fine roots; common very fine tubular pores; 40 percent distinct very dark gray (10YR 3/1) clay films on surfaces of peds; 1 percent fine faint brown (10YR 4/3) iron-manganese masses with sharp boundaries lining pores; noneffervescent; slightly alkaline; gradual wavy boundary.
- Bt3—26 to 38 inches; 80 percent dark gray (10YR 4/1) and 20 percent dark grayish brown (10YR 4/2) sandy clay loam, dark gray (10YR 4/1) and grayish brown (10YR 5/2) dry; moderate medium and coarse prismatic structure parting to moderate medium and coarse angular blocky; hard, friable; few very fine roots; common very fine tubular pores; 30 percent distinct dark gray (10YR 4/1) clay films on surfaces of peds; 1 percent fine faint brown (10YR 4/3) iron-manganese masses with sharp boundaries lining pores; 1 percent fine nodules of calcium carbonate; very slightly effervescent; moderately alkaline; gradual wavy boundary.
- Btk1—38 to 56 inches; grayish brown (10YR 5/2) sandy clay loam, light brownish gray (10YR 6/2) dry; moderate coarse prismatic structure parting to moderate medium and coarse angular blocky; hard, firm; few very fine roots; few very fine tubular pores; 30 percent prominent dark grayish brown (10YR 4/2) clay films on surfaces of peds; 1 percent fine distinct dark yellowish brown (10YR 4/6) iron-manganese masses with sharp boundaries lining pores; 5 percent fine nodules of calcium carbonate; 8 percent fine threads of calcium carbonate; 7 percent fine and medium masses of calcium carbonate; strongly effervescent; moderately alkaline; gradual wavy boundary.
- Btk2—56 to 66 inches; pale yellow (2.5Y 7/3) sandy clay loam, very pale brown (10YR 7/4) dry; weak coarse prismatic structure parting to weak coarse subangular blocky; hard, firm; 10 percent distinct light brownish gray (10YR 6/2) clay films on surfaces of peds; 10 percent distinct cracks 1 to 2 cm wide filled with dark grayish brown (10YR 4/2) clay; 3 percent fine nodules of calcium carbonate; 5 percent fine and medium threads of calcium carbonate; 15 percent medium and coarse carbonate masses; strongly effervescent; moderately alkaline; gradual wavy boundary.
- Btk3—66 to 80 inches; very pale brown (10YR 7/3) sandy clay loam, very pale brown (10YR 8/3) dry; weak coarse subangular blocky structure; firm, hard; 8 percent distinct very pale brown (10YR 8/2) clay films on surfaces of peds; 3 percent distinct cracks 5 to 10 mm wide filled with dark grayish brown (10YR 4/2) clay; 3 percent fine nodules of calcium carbonate; 10 percent coarse masses of calcium carbonate; strongly effervescent; moderately alkaline.

Type Location

Nueces County, Texas; from the intersection of Farm Road 892 and U.S. Highway 77 in Robstown, about 1.4 miles south on Farm Road 892 to County Road 34, 0.55 mile east on County Road 34, 600 feet north along drainage ditch, and 100 feet east in cropland. Robstown, Texas USGS topographic quadrangle; NAD 83;

Latitude: 27 degrees, 45 minutes, 22.10 seconds, North; Longitude: 97 degrees, 39 minutes, 35.70 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is from 4 to 12 inches below the surface. It is dry in some or all parts for more than 90 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Mean annual soil temperature: 71 to 73 degrees F

Depth to argillic horizon: 4 to 9 inches

Depth to secondary calcium carbonate: 16 to 29 inches

Thickness of the mollic epipedon: 20 to 28 inches

Particle-size control section (weighted average):

Clay content: 28 to 33 percent

CEC/clay ratio: 0.60 to 0.80

Ap horizon

Hue: 10YR

Value: 2 to 4

Chroma: 1 or 2

Texture: Fine sandy loam, loam, or sandy clay loam

Clay content: 13 to 27 percent

EC (dS/m): 0 to 1

SAR: 0 to 4

Effervescence: None

Reaction: Slightly acid to slightly alkaline

Bt horizon (upper part)

Hue: 10YR

Value: 2 or 3

Chroma: 1 or 2

Texture: Sandy clay loam, clay loam, or sandy clay

Clay content: 23 to 38 percent

Redox concentrations: Amount—0 to 2 percent; size—fine; contrast—faint or distinct; boundary—sharp; location—lining pores; shades—brown or yellow

EC (dS/m): 0 to 2

SAR: 0 to 4

Effervescence: None or very slight

Reaction: Slightly acid to slightly alkaline

Bt horizon (lower part)

Hue: 10YR

Value: 4 or 5

Chroma: 1 or 2

Texture: Sandy clay loam or clay loam

Clay content: 30 to 35 percent

Redox concentrations: Amount—0 to 2 percent; size—fine; contrast—faint or distinct; boundary—sharp; location—lining pores; shades—brown or yellow

EC (dS/m): 0 to 2

SAR: 0 to 4

Effervescence: None to slight

Reaction: Neutral to moderately alkaline

Btk horizon

Hue: 10YR or 2.5Y

Value: 5 to 8

Chroma: 2 or 3

Texture: Sandy clay loam or clay loam

Clay content: 30 to 35 percent

Redox concentrations: Amount—0 to 5 percent; size—fine or medium; contrast—faint or distinct; boundary—sharp; location—lining pores or in matrix; shades—brown or yellow

Calcium carbonate equivalent: 5 to 15 percent

Identifiable secondary carbonates: Amount—5 to 25 percent; size—fine to coarse; kind—masses or nodules; location—in matrix

Gypsum: 0 to 2 percent

EC (dS/m): 0 to 4

SAR: 4 to 12

Effervescence: Slight to strong

Reaction: Slightly alkaline or moderately alkaline

Carreta Series

The Carreta series consists of very deep, moderately well drained, slowly permeable soils that formed in loamy alluvial deposits. These nearly level soils are on erosional remnants of treads of stream terraces that formed in low-relief river valleys on the South Texas Coastal Plain. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Fine, smectitic, hyperthermic Leptic Vertic Natrustolls

Typical Pedon

Carreta sandy clay loam— in cropland with a 0 to 1 percent slope, at an elevation of 59 feet. (Colors are for dry soil unless otherwise stated.)

Ap1—0 to 3 inches; very dark gray (10YR 3/1) sandy clay loam, dark gray (10YR 4/1) dry; weak fine granular structure; hard, friable; common very fine and fine roots; common very fine and fine interstitial and tubular pores; very slight effervescence; slightly alkaline; abrupt smooth boundary.

Ap2—3 to 7 inches; very dark gray (10YR 3/1) sandy clay loam, dark gray (10YR 4/1) dry; weak medium subangular blocky structure; moderately hard, friable; common very fine and fine roots; common very fine and fine interstitial and tubular pores; very slight effervescence; slightly alkaline; abrupt smooth boundary.

Btnz1—7 to 11 inches; very dark gray (10YR 3/1) clay, dark gray (10YR 4/1) dry; weak medium prismatic structure parting to moderate medium angular blocky; extremely hard, very firm; common very fine roots; common very fine tubular pores; 5 percent distinct clay films; 1 percent fine salt crystals; slight effervescence; slightly alkaline; gradual smooth boundary.

Btnz2—11 to 21 inches; very dark grayish brown (10YR 3/2) clay, dark grayish brown (10YR 4/2) dry; weak coarse prismatic structure parting to weak medium angular blocky; extremely hard, very firm; common very fine tubular pores; 10 percent distinct clay films; 1 percent fine salt crystals; 1 percent fine threadlike salt masses; 1 percent fine carbonate nodules; slight effervescence; slightly alkaline; gradual smooth boundary.

Btknyz1—21 to 31 inches; very dark grayish brown (10YR 3/2) clay, dark grayish brown (10YR 4/2) dry; weak coarse prismatic structure parting to weak medium

subangular blocky; very hard, extremely firm; few very fine tubular pores; 15 percent faint clay films; 1 percent fine gypsum crystals; 1 percent fine threadlike salt masses; 1 percent fine carbonate nodules; strong effervescence; slightly alkaline; gradual wavy boundary.

Btknyz2—31 to 38 inches; dark gray (10YR 4/1) clay, gray (10YR 5/1) dry; weak coarse prismatic structure parting to weak medium subangular blocky; extremely hard, very firm; 15 percent faint clay films; 1 percent fine gypsum crystals; 1 percent fine threadlike salt masses; 1 percent fine carbonate nodules; strong effervescence; slightly alkaline; gradual wavy boundary.

Btkny1—38 to 49 inches; dark grayish brown (10YR 4/2) clay, grayish brown (10YR 5/2) dry; weak coarse prismatic structure parting to weak medium subangular blocky; extremely hard, very firm; 8 percent faint clay films; 1 percent fine gypsum crystals; 1 percent fine carbonate nodules; strong effervescence; moderately alkaline; gradual wavy boundary.

Btkny2—49 to 67 inches; very pale brown (10YR 8/3) clay, very pale brown (10YR 7/3) dry; weak coarse prismatic structure parting to weak coarse subangular blocky; extremely hard, very firm; 5 percent faint clay films; 1 percent fine gypsum crystals; 1 percent fine carbonate nodules; violent effervescence; moderately alkaline; gradual wavy boundary.

Btkny3—67 to 80 inches; light gray (2.5Y 7/2) clay, pale yellow (2.5Y 8/2) dry; weak coarse prismatic structure parting to weak coarse subangular blocky; extremely hard, very firm; 2 percent faint clay films; 1 percent fine gypsum crystals; 1 percent fine carbonate nodules; violent effervescence; slightly alkaline.

Type Location

Kleberg County, Texas; from the intersection of U.S. Highway Business 77 and Farm Road 772 in the south part of Kingsville, 0.7 mile west on Farm Road 772 to County Road 1030, 0.8 mile north on County Road 1030, and 0.2 mile east in cropland. Ricardo, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 27 minutes, 50 seconds, North; Longitude: 97 degrees, 52 minutes, 10 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. Precipitation pattern is moist during spring and fall months and dry during summer and winter months. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Mean annual soil temperature: 76 to 80 degrees F

Depth to secondary calcium carbonate: 7 to 18 inches

Depth to Natric horizon: 6 to 13 inches

Depth to salt accumulations: 6 to 13 inches

Particle-size control section (weighted average):

Clay content: 38 to 45 percent

Sand content: 26 to 38 percent

A horizon

Hue: 10YR

Value: 2 to 4, 2 or 3 moist

Chroma: 1 or 2

Texture: Loam, sandy clay loam, or clay loam

Clay content: 25 to 35 percent

Calcium carbonate equivalent: 0 to 6 percent
Identifiable secondary carbonate: Amount—0 to 1 percent; size—fine
EC (dS/m): 8 to 35
Gypsum: 0 to 2 percent
SAR: 6 to 25
Effervescence: None to very slight
Reaction: Neutral to moderately alkaline

Btnz horizon

Hue: 10YR
Value: 3 to 6
Chroma: 1 or 2
Texture: Clay loam, sandy clay, or clay
Clay content: 35 to 55 percent
Calcium carbonate equivalent: 0 to 13 percent
Identifiable secondary carbonate: Amount—0 to 2 percent; size—fine
EC (dS/m): 2 to 25
Gypsum: 0 to 2 percent
SAR: 15 to 50
Effervescence: None to slight
Reaction: Slightly alkaline or moderately alkaline

Btknyz horizon

Hue: 10YR
Value: 5 to 8
Chroma: 1 to 3
Texture: Clay loam or clay
Clay content: 35 to 55 percent
Calcium carbonate equivalent: 5 to 15 percent
Identifiable secondary carbonate: Amount—1 to 8 percent; size—fine or medium
EC (dS/m): 5 to 30
Gypsum: 1 to 3 percent
SAR: 30 to 55
Effervescence: Strong or violent
Reaction: Slightly alkaline or moderately alkaline

Btkny horizon

Hue: 10YR or 2.5Y
Value: 5 to 8
Chroma: 2 or 3
Texture: Clay loam or clay
Clay content: 35 to 55 percent
Calcium carbonate equivalent: 5 to 15 percent
Identifiable secondary carbonate: Amount—1 to 8 percent; size—fine or medium
EC (dS/m): 5 to 30
Gypsum: 0 to 2 percent
SAR: 12 to 55
Effervescence: Strong or violent
Reaction: Slightly alkaline or moderately alkaline

Cayo Series

The Cayo series consists of very deep, moderately well drained, moderately rapid permeable soils that formed in sandy and loamy sediments of Holocene and

Pleistocene age. These nearly level soils are in interdunes on the Sand sheet Prairie of the South Texas Coastal Plain. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 26 inches.

Taxonomic Class

Coarse-loamy, mixed, semiactive, hyperthermic Typic Calcustepts

Typical Pedon

Cayo fine sandy loam—in slightly concave interdune, with a 0 to 1 percent slope, at an elevation of 20 feet, in rangeland. (Colors are for dry soil unless otherwise stated.) (fig. 36)

- A1—0 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam, grayish brown (10YR 5/2) dry; moderate fine and medium subangular blocky structure; slightly hard, very friable; common fine and few medium roots; few fine and medium pores; strongly effervescent; moderately alkaline; clear smooth boundary.
- A2—5 to 12 inches; dark grayish brown (2.5Y 4/2) fine sandy loam, grayish brown (2.5Y 5/2) dry; moderate medium subangular blocky structure parting to weak fine subangular blocky; slightly hard, very friable; few fine and medium roots; few fine and medium pores; strongly effervescent; moderately alkaline; clear smooth boundary.
- Bk—12 to 19 inches; grayish brown (2.5Y 5/2) fine sandy loam, light brownish gray (2.5Y 6/2) dry; moderate medium subangular blocky structure; slightly hard, very friable; few fine and medium roots; few fine and medium pores; 10 percent grayish brown (2.5Y 5/2) land crab krotovinas; violently effervescent; moderately alkaline; gradual smooth boundary.
- Bknz1—19 to 28 inches; light brownish gray (2.5Y 6/2) fine sandy loam, light gray (2.5Y 7/2) dry; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, very friable; few fine and medium roots; few fine and medium pores; few fine masses of calcium carbonate; few land crab remains; 15 percent grayish brown (2.5Y 5/2) land crab krotovinas; moderately saline; moderately sodic; violently effervescent; strongly alkaline; gradual smooth boundary.
- Bknz2—28 to 41 inches; light brownish gray (2.5Y 6/2) fine sandy loam, light gray (2.5Y 7/2) dry; moderate medium prismatic structure parting to weak medium subangular blocky; slightly hard, very friable, few fine and medium roots; common fine and medium pores; few fine masses of calcium carbonate; few land crab remains; 15 percent grayish brown (2.5Y 5/2) land crab krotovinas; moderately saline; moderately sodic; violently effervescent; strongly alkaline; gradual smooth boundary.
- 2Bknz3—41 to 51 inches; olive (5Y 5/3) fine sandy loam, pale olive (5Y 6/4) dry; weak medium prismatic structure parting to moderate medium subangular blocky; hard, friable; few fine and medium roots; few fine and medium pores; common land crab remains; 15 percent grayish brown (2.5Y 5/2) land crab krotovinas; few fine and medium masses of calcium carbonate; moderately saline; moderately sodic; violently effervescent; strongly alkaline; gradual smooth boundary.
- 2Bknz4—51 to 61 inches; olive (5Y 5/3) fine sandy loam, pale olive (5Y 6/4) dry; weak medium prismatic structure parting to moderate medium subangular blocky; hard, friable; few fine and medium roots; few fine and medium pores; many fine and medium masses of calcium carbonate; 15 percent grayish brown (2.5Y 5/2) land crab krotovinas; few medium distinct olive yellow masses of oxidized iron with diffuse boundaries; strongly saline; moderately sodic; violently effervescent; strongly alkaline; gradual smooth boundary.



Figure 36.—Profile of Cayo fine sandy loam in an area of Cayo fine sandy loam, 0 to 1 percent slopes. These soils formed in a much wetter climate as evidenced by the relict redox features. (Scale in D-decimeters, and FT-feet)

2Bnz—61 to 80 inches; olive (5Y 5/3) fine sandy loam, pale olive (5Y 6/4) dry; weak medium prismatic structure parting to weak coarse subangular blocky; slightly hard, friable; few fine and medium roots; few fine and medium pores; few medium elongated segregation of calcium carbonate vertically oriented; few coarse distinct olive brown masses of oxidized iron with diffuse boundaries; strongly saline; moderately sodic; strong effervescence; moderately alkaline.

Type Location

Kenedy County, Texas; from the intersection of La Parra Avenue and U.S. Highway 77 in Sarita, 15 miles south on U.S. Highway 77 to ranch east gate, 7.8 miles southeast on ranch road, 4.7 miles south on ranch road, generally east 7.8 miles where road goes southeast, continue southeast 0.25 miles; site is 30 feet north of road in rangeland. San Pedro Ranch, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 52 minutes, 56 seconds, North; Longitude: 97 degrees, 38 minutes, 37.5 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 days cumulative in normal years. The soil moisture control section is also either moist in some or all parts for 180

cumulative days or more, or moist for 90 or more consecutive days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Depth to secondary calcium carbonate: 6 to 15 inches

Depth to cambic horizon: 6 to 14 inches

Depth to calcic horizon: 14 to 30 inches

Depth to redox concentrations: 40 to 60 inches

Depth to redox depletions: 40 to 60 inches

Particle-size control section (weighted average):

Clay content: 11 to 18 percent

A horizon

Hue: 10YR or 2.5Y

Value: 5 or 6

Chroma: 2 or 3

Texture: Fine sandy loam or loam

Clay content: 11 to 18 percent

Calcium carbonate equivalent: 0 to 15 percent

EC (dS/m): 0 to 4 in the upper 51 cm (20 inches)

SAR: 0 to 3

Effervescence: Strong or violent

Reaction: Moderately alkaline or strongly alkaline

Bk and Bknz horizons

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 2 or 3

Texture: Fine sandy loam, loam, or sandy clay loam

Clay content: 11 to 18 percent

Calcium carbonate equivalent: 8 to 20 percent

EC (dS/m): 8 to 16

SAR: 10 to 35

Effervescence: Strong or violent

Reaction: Moderately alkaline or strongly alkaline

2Bknz and 2Bnz horizons

Hue: 5Y

Value: 5 or 6

Chroma: 2 to 4

Texture: Fine sandy loam, loam, or sandy clay loam

Clay content: 11 to 18 percent

Calcium carbonate equivalent: 1 to 10 percent

EC (dS/m): 16 to 32

SAR: 15 to 50

Effervescence: Strong or violent

Reaction: Moderately alkaline or strongly alkaline

Clareville Series

The Clareville series consists of very deep, well drained, moderately slowly permeable soils that formed in loamy alluvial sediments of Holocene age. These nearly level to very gently sloping 0 to 3 percent are on toeslopes in draws. Mean

annual air temperature is about 72 degrees F, and mean annual precipitation is about 28 inches.

Taxonomic Class

Fine, smectitic, hyperthermic Pachic Argiustolls

Typical Pedon

Clareville loam, on southeast, facing, 0.7 percent slope in cropland at an elevation of 180 feet. (Colors are for dry soil unless otherwise stated.)

Ap—0 to 5 inches; very dark gray (10YR 3/1) loam, dark gray (10YR 4/1) dry; weak fine granular structure; hard, friable; slightly sticky; few fine roots; neutral; abrupt smooth boundary.

A—5 to 11 inches; black (10YR 2/1) clay loam, very dark gray (10YR 3/1) dry; weak fine subangular blocky structure; hard, friable; sticky; few fine roots; few fine pores; neutral; clear smooth boundary.

Bt1—11 to 18 inches; black (10YR 2/1) clay loam, very dark gray (10YR 3/1) dry; moderate fine and medium subangular blocky structure; very hard, firm, sticky; few fine roots; many fine pores; few distinct clay films; slightly alkaline; gradual smooth boundary.

Bt2—18 to 25 inches; very dark grayish brown (10YR 3/2) clay loam, dark grayish brown (10YR 4/2) dry; moderate medium prismatic structure parting to moderate medium blocky; very hard, firm, sticky; few fine roots; many fine pores; common distinct clay films; few wormcasts; slightly alkaline; gradual wavy boundary.

Btk—25 to 33 inches; brown (10YR 4/3) clay loam, brown (10YR 5/3) dry; moderate medium blocky structure; very hard, very firm, sticky; few fine roots; many fine pores; common distinct clay films; few masses of calcium carbonate; few wormcasts; slightly effervescent; moderately alkaline; gradual wavy boundary.

Bk1—33 to 38 inches; dark grayish brown (10YR 4/2) clay loam, grayish brown (10YR 5/2) dry; weak medium blocky structure; very hard, very firm, sticky; few fine roots; few fine pores; many wormcasts; few masses and concretions of calcium carbonate; slightly effervescent; moderately alkaline; clear wavy boundary.

Bk2—38 to 46 inches; dark grayish brown (10YR 4/2) clay loam, grayish brown (10YR 5/2) dry; weak coarse subangular blocky structure; hard, firm, sticky; few fine roots; few fine pores; about 20 percent masses and concretions of calcium carbonate; strongly effervescent; moderately alkaline; gradual smooth boundary.

Bck—46 to 80 inches; very pale brown (10YR 7/3) loam, very pale brown (10YR 8/3) dry; weak coarse subangular blocky structure; hard, friable; few masses and concretions of calcium carbonate; slightly effervescent; moderately alkaline.

Type Location

Jim Wells County, Texas; from the intersection of U.S. Highway 281 and Texas Highway 359 in Alice, 16 miles northeast on Texas Highway 359, 130 yards east of gas pipeline marker and right-of-way marker in cropland, this point is 1.55 miles southwest of the intersection of Texas Highway 359 and Farm Road 624 in Orange Grove. Orange Grove, Texas USGS topographic quadrangle; NAD 83; Latitude is 27 degrees, 56 minutes, 13.3 seconds, North; Longitude: 97 degrees, 56 minutes, 51.6 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 days in normal years. Precipitation pattern is moist during spring and fall months and dry during winter and summer months.

Mean annual soil temperature: 72 to 75 degrees F
Solum thickness: 60 to 80 inches
Thickness of mollic epipedon: 20 to 50 inches
Depth to secondary calcium carbonate: 24 to 36 inches
Particle-size control section (weighted average):
Clay content: 35 to 45 percent

A horizon

Hue: 10YR
Value: 2 to 4
Chroma: 1 to 3
Texture: Loam, clay loam, or sandy clay loam
Reaction: Neutral or slightly alkaline

Bt horizon

Hue: 7.5YR or 10YR
Value: 2 to 4
Chroma: 1 or 2
Texture: Sandy clay loam, clay loam, sandy clay, or clay
Reaction: Neutral or slightly alkaline

Btk or Bk horizons

Hue: 7.5YR or 10YR
Value: 3 to 6 (increases with depth)
Chroma: 1 to 4 (increases with depth)
Texture: Sandy clay loam, clay loam, sandy clay, or clay
Calcium carbonate equivalent: 5 to 30 percent
Effervescence: None to strong
Reaction: Moderately alkaline

BCK horizon

Hue: 7.5YR or 10YR
Value: 5 to 8
Chroma: 2 to 6
Texture: Loam, clay loam, or sandy clay loam
Calcium carbonate equivalent: 15 to 50 percent
Effervescence: None to strong
Reaction: Moderately alkaline

Colmena Series

The Colmena series consists of very deep, moderately permeable, well drained soils that formed in loamy sediments over calcareous loamy alluvium of Quaternary age. These nearly level to gently sloping soils are on side slopes of Paleoterrace remnants. Slope ranges from 0 to 3 percent. The mean annual temperature is about 72 degrees F, and the mean annual precipitation is about 26 inches.

Taxonomic Class

Fine-loamy, mixed, superactive, hyperthermic Typic Argiustolls

Typical Pedon

Colmena fine sandy loam, on a east-facing, linear, 2 percent slope in rangeland at an elevation of 69 feet. (Colors are for dry soil unless otherwise noted.) (fig. 37)

- A1—0 to 6 inches; very dark gray (10YR 3/1) fine sandy loam, dark gray (10YR 4/1) dry; moderate medium subangular blocky structure; slightly hard, very friable; common fine and medium roots; common fine tubular and very fine tubular pores; neutral; clear smooth boundary.
- A2—6 to 11 inches; black (10YR 2/1) fine sandy loam, very dark grayish brown (10YR 3/2) dry; moderate medium subangular blocky structure; hard, very friable; common fine roots; common very fine and fine tubular pores; neutral; clear smooth boundary.
- Bt1—11 to 19 inches; very dark grayish brown (10YR 3/2) fine sandy loam, dark grayish brown (10YR 4/2) dry; moderate medium prismatic structure; hard, very friable; common fine roots; common very fine, fine, and medium tubular pores; 6 percent distinct very dark grayish brown (10YR 3/2) clay films on all faces of peds; neutral; gradual smooth boundary.
- Bt2—19 to 39 inches; dark yellowish brown (10YR 4/4) sandy clay loam, yellowish brown (10YR 5/4) dry; moderate medium prismatic structure; very hard, very friable; common fine and medium roots; common very fine and fine tubular pores; 8 percent distinct brown (10YR 4/3) clay films on all faces of peds; neutral; abrupt smooth boundary.
- 2Btk1—39 to 50 inches; variegated matrix with 50 percent brown (10YR 5/3) and 50 percent grayish brown (10YR 5/2) sandy clay loam, light gray (10YR 7/2) and 50 percent light yellowish brown (10YR 6/4) dry; moderate medium prismatic structure; extremely hard, very friable; common fine roots; common very fine and fine tubular pores; 3 percent faint pale brown (10YR 6/3) clay films on surfaces along pores; 2 percent fine prominent irregular extremely weakly cemented white (7.5YR 8/1) calcium carbonate masses with sharp boundaries in matrix along faces of peds and 10 percent fine prominent irregular extremely weakly cemented white (7.5YR 8/1) calcium carbonate, finely disseminated with sharp boundaries infused in matrix; strongly effervescent; slightly alkaline; gradual smooth boundary.
- 2Btk2—50 to 61 inches; pale brown (10YR 6/3) sandy clay loam, very pale brown (10YR 7/3) dry; moderate medium prismatic structure; extremely hard, very friable; common fine roots; common very fine and fine tubular pores; 3 percent faint light yellowish brown (10YR 6/4) clay films on surfaces along pores; 15 percent fine prominent irregular extremely weakly cemented white (7.5YR 8/1) calcium carbonate masses with sharp boundaries in matrix along faces of peds; violently effervescent; slightly alkaline; gradual smooth boundary.
- 2Btk3—61 to 80 inches; pale brown (10YR 6/3) sandy clay loam, very pale brown (10YR 7/4) dry; moderate medium prismatic structure; very hard, very friable; common fine roots; common very fine and fine tubular pores; 3 percent faint brownish yellow (10YR 6/6) clay films on surfaces along pores; 20 percent medium prominent irregular extremely weakly cemented white (7.5YR 8/1) calcium carbonate masses with sharp boundaries in matrix along faces of peds and 5 percent coarse prominent irregular weakly cemented white (7.5YR 8/1) calcium carbonate masses with sharp boundaries along faces of peds; violently effervescent; slightly alkaline.

Type Location

Kleberg County, Texas; from the intersection of U.S. Highway 77 and Highway 141 in Kingsville, 7.7 miles west on Highway 141, 3.1 miles southwest on ranch road, 2.1 miles south on ranch road, 4.0 miles east on ranch road, and 200 feet south in rangeland. Escondido Lake, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 28 minutes, 41.18 seconds, North; Longitude: 97 degrees, 56 minutes, 6.70 seconds, West.

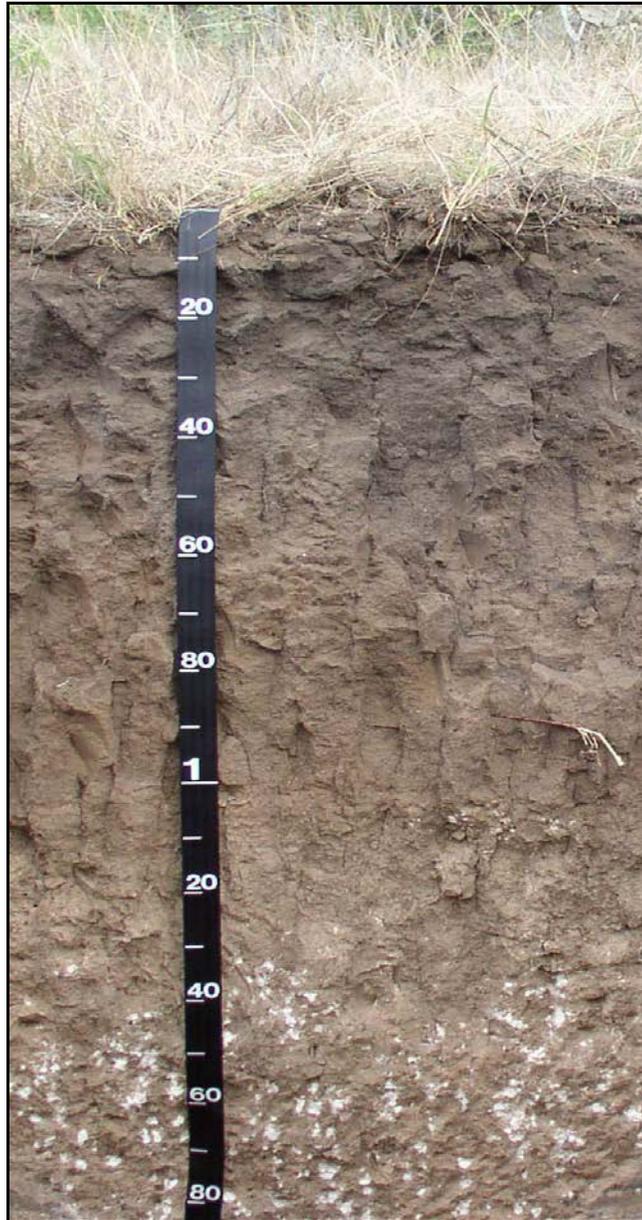


Figure 37.—Profile of Colmena fine sandy loam, in an area of Colmena fine sandy loam, 1 to 3 percent slopes. The white splotches at a depth of 140 centimeters (55 inches), are masses and concretions of calcium carbonate. (Scale is in centimeters and meters.)

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 days but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Mean annual soil temperature: 72 to 74 degrees F

Depth to argillic horizon: 5 to 15 inches

Depth to secondary calcium carbonate: 29 to 65 inches

Particle-size control section (weighted average):
Clay content: 20 to 32 percent

A horizon

Hue: 10YR
Value: 2 to 4
Chroma: 1 to 3
Texture: Loamy fine sand or fine sandy loam
Clay content: 8 to 19 percent
Rock fragments: 0 to 5 percent
Calcium carbonate equivalent: 0 to 5 percent
EC (dS/m): 0 to 3
SAR: 0 to 4
Effervescence: None
Reaction: Neutral or slightly alkaline

Bt horizon

Hue: 7.5YR or 10YR
Value: 4 to 7
Chroma: 1 to 4
Texture: Fine sandy loam, sandy clay loam, or clay loam
Clay content: 20 to 32 percent
Clay films: Amount—4 to 8 percent, location—along faces of peds and in matrix, contrast—faint or distinct
Redox concentrations: Amount—0 to 10 percent; size—fine and medium; contrast—distinct, prominent, and clear; location—ped faces and along root channels; shades—brown or yellow
Rock fragments: Amount—0 to 5 percent
Calcium carbonate equivalent: 0 to 5 percent
EC (dS/m): 0 to 3
SAR: 0 to 4
Effervescence: None to slight
Reaction: Neutral to moderately alkaline

2Bk or 2Btk horizons

Hue: 7.5YR or 10YR
Value: 4 to 8
Chroma: 2 to 6
Texture: Loam or sandy clay loam
Clay content: 20 to 32 percent
Clay films: Amount—3 to 5 percent; location—on surfaces along pores; contrast—faint
Calcium carbonate equivalent: 5 to 15 percent
Identifiable secondary carbonates: Amount—2 to 20 percent; kind—threads, masses, and nodules; size—fine to coarse; location—infused in matrix and along faces of peds
EC (dS/m): 0 to 1
SAR: 2 to 4
Effervescence: Slight to violent
Reaction: Slightly alkaline or moderately alkaline

Cranell Series

The Cranell series consists of very deep, well drained, slowly permeable soils. These nearly level soils, on flats, formed in loamy and clayey sediments of mid-to

late-Pleistocene age. Slope ranges from 0 to 3 percent. Mean annual air temperature is about 70 degrees F, and mean annual precipitation is about 35 inches.

Taxonomic Class

Fine, smectitic, hyperthermic Vertic Argiustolls

Typical Pedon

Cranell sandy clay loam, rangeland. (Colors are for moist soil unless otherwise stated.)

- A—0 to 10 inches; black (10YR 2/1) sandy clay loam; moderate fine and medium subangular blocky structure; hard, firm; many very fine, fine, and common medium roots; common fine interstitial pores; few cracks 5 to 15 cm wide; slightly alkaline; clear smooth boundary.
- Bt1—10 to 22 inches; black (10YR 2/1) sandy clay; moderate medium prismatic structure parting to moderate fine and medium angular blocky; extremely hard, extremely firm; common very fine and fine roots; common fine interstitial pores; common distinct pressure surfaces; many distinct clay films on surfaces of peds; few cracks 5 to 10 cm wide filled with black (10YR 2/1) clay; slightly alkaline; clear wavy boundary.
- Bt2—22 to 29 inches; very dark gray (10YR 3/1) sandy clay; weak medium prismatic structure parting to weak medium angular blocky; extremely hard, extremely firm; common very fine and fine roots; common fine tubular pores; many distinct pressure surfaces; few faint slickensides; common distinct clay films on surfaces of peds; few cracks 3 to 10 mm wide filled with black (10YR 2/1) clay; few fine nodules of calcium carbonate; slightly alkaline; gradual wavy boundary.
- Btk—29 to 43 inches; dark grayish brown (10YR 4/2) sandy clay; moderate fine and medium subangular blocky structure; very hard, very firm; common fine roots; common fine tubular pores; common faint pressure surfaces; few faint slickensides; few faint clay films on surfaces of peds; few cracks 1 to 5 mm wide filled with black (10YR 2/1) clay; common fine and medium nodules of calcium carbonate; common fine and medium masses of calcium carbonate; slightly effervescent; moderately alkaline; gradual wavy boundary.
- Bk1—43 to 58 inches; pale brown (10YR 6/3) sandy clay loam; moderate fine and medium subangular blocky structure; very hard, very firm; common fine roots; few cracks 1 to 3 mm wide filled with very dark gray (10YR 3/1) clay; common fine and medium nodules of calcium carbonate; common fine and medium masses of calcium carbonate; strongly effervescent; moderately alkaline; gradual wavy boundary.
- Bk2—58 to 80 inches; pale yellow (2.5Y 7/3) sandy clay loam; weak medium subangular blocky structure; very hard, very firm; common fine roots; common fine nodules of calcium carbonate; common fine and medium masses of calcium carbonate; few fine concretions of iron-manganese; strongly effervescent; moderately alkaline.

Type Location

Refugio County, Texas; from the intersection of U.S. Highway 77 and Farm Road 2441 in Woodsboro, about 5 miles south on U.S. Highway 77 to ranch road, 0.5 mile east on ranch road, and 100 feet south in rangeland; Cranell, Texas USGS topographic quadrangle; NAD 83; Latitude: 28 degrees, 10 minutes, 25 seconds, North; Longitude: 97 degrees, 25 minutes, 00 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section, 4 to 12 inches, is dry in some or all parts for more than 90 but less than 150 cumulative days in normal years. July through September, December, and March are the driest months.

Solum thickness: More than 80 inches
Mean annual soil temperature: 72 to 74 degrees F
Depth to argillic horizon: 7 to 14 inches
Depth to secondary calcium carbonate: 22 to 36 inches
Depth to calcic horizon: 36 to 53 inches
Depth to vertic features: 7 to 14 inches
Particle-size control section (weighted average):
 Clay content: 35 to 45 percent

A horizon

Hue: 10YR
Value: 2 or 3
Chroma: 1 or 2
Texture: Sandy clay loam or clay loam
Clay content: 20 to 35 percent
Reaction: Neutral or slightly alkaline

Bt horizon

Hue: 10YR
Value: 2 to 4
Chroma: 1 or 2
Texture: Sandy clay or clay
Clay content: 35 to 45 percent
Clay films: Location—surfaces of peds; contrast—faint or distinct
Identifiable secondary carbonate: Amount—0 to 2 percent; size—fine; location—in lower part of horizon
Effervescence: None to strong
Reaction: Slightly alkaline or moderately alkaline

Btk horizon

Hue: 10YR or 2.5Y
Value: 4 to 7
Chroma: 2 to 4
Texture: Sandy clay loam, clay loam, or sandy clay
Clay content: 22 to 40 percent
Clay films: Location—surfaces of peds; contrast—faint or distinct
Calcium carbonate equivalent: 3 to 10 percent
Identifiable secondary carbonate: Amount—2 to 10 percent; size—fine or medium; location—throughout
Effervescence: Slight or strong
Reaction: Slightly alkaline or moderately alkaline

Bk horizon

Hue: 10YR or 2.5Y
Value: 5 to 7
Chroma: 3 or 4
Texture: Sandy clay loam, clay loam, clay
Clay content: 22 to 32 percent
Calcium carbonate equivalent: 5 to 15 percent
Identifiable secondary carbonate: Amount—5 to 20 percent; size—fine to coarse; location—throughout
Effervescence: Slight or strong
Reaction: Slightly alkaline or moderately alkaline

Czar Series

The Czar series consists of very deep, well drained, moderately permeable soils that formed in loamy alluvium and eolian sediments of Holocene age over loamy alluvium deposits of Quaternary age. These soils are on nearly level to gently sloping stream terraces. Slope ranges from 0 to 3 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Fine-loamy, mixed, superactive, hyperthermic Pachic Argiustolls

Typical Pedon

Czar fine sandy loam, on a northwest facing, slightly convex, 1 percent slope in pasture at an elevation of 55 feet. (Colors are for dry soil unless otherwise stated.) (fig. 38)

- A—0 to 7 inches; very dark brown (10YR 2/2) fine sandy loam, very dark grayish brown (10YR 3/2) dry; weak fine and medium granular structure; hard, friable; common fine and many medium roots; many fine tubular pores; moderately acid; abrupt smooth boundary.
- Bt1—7 to 13 inches; black (10YR 2/1) sandy clay loam, very dark grayish brown (10YR 3/2) dry; moderate coarse subangular blocky structure; very hard, firm; common fine, very fine, and medium roots; many fine tubular pores; 3 percent faint clay films on faces of peds; neutral; clear smooth boundary.
- Bt2—13 to 27 inches; very dark gray (10YR 3/1) sandy clay loam, dark grayish brown (10YR 4/2) dry; moderate coarse prismatic structure parting to moderate medium subangular blocky; very hard, friable; common fine, medium, and many very fine roots; many fine and common medium tubular pores; 12 percent distinct clay films on faces of peds; neutral; gradual smooth boundary.
- Bt3—27 to 40 inches; very dark grayish brown (10YR 3/2) sandy clay loam, dark grayish brown (10YR 4/2) dry; strong coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm; common fine and medium roots; common very fine and fine irregular pores; 35 percent distinct very dark brown (10YR 2/2) clay films on faces of peds; noneffervescent; slightly alkaline; gradual wavy boundary.
- Bt4—40 to 61 inches; brown (10YR 4/3) sandy clay loam, brown (10YR 5/3) dry; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, friable; common fine and coarse roots; many fine tubular pores; 7 percent faint clay films on faces of peds; noneffervescent; slightly alkaline; clear smooth boundary.
- 2Btk1—61 to 69 inches; light yellowish brown (10YR 6/4) sandy clay loam, very pale brown (10YR 7/4) dry; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable; common fine and coarse roots; many fine, very fine, and common medium tubular pores; 2 percent faint clay films on faces of peds; 20 percent fine distinct dendritic white (10YR 8/1) finely disseminated carbonates infused into matrix along faces of peds; 5 percent medium prominent irregular white (10YR 8/1) carbonate masses infused into matrix along faces of peds; violently effervescent; strongly alkaline; clear smooth boundary.
- 2Btk2—69 to 80 inches; very pale brown (10YR 7/4) sandy clay loam, very pale brown (10YR 8/4) dry; weak medium prismatic structure parting to moderate medium subangular blocky; very hard, friable; common fine and coarse roots; common fine and medium tubular pores; 1 percent faint clay films on faces of peds; 25 percent fine distinct dendritic white (10YR 8/1) finely disseminated



Figure 38.—Profile of Czar fine sandy loam, in an area of Czar fine sandy loam, 0 to 1 percent slopes. Czar soils have a thick, dark-colored surface layer about 40 inches thick. (Scale is in centimeters and meters.)

carbonates infused into matrix along faces of peds; 15 percent medium prominent irregular white (10YR 8/1) carbonate masses infused into matrix along faces of peds; 15 percent coarse prominent irregular white (10YR 8/1) carbonate masses infused into matrix along faces of peds; violently effervescent; strongly alkaline.

Type Location

Kleberg County, Texas; from the intersection of U.S. Business Highway 77 and Texas Highway 141 in Kingsville, 14.85 miles south on Highway 77, 6.4 miles west on ranch road, 6.3 miles north on ranch road, and 0.2 miles west in rangeland. Escondido Lake, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 23 minutes, 48.20 seconds, North; Longitude: 97 degrees, 57 minutes, 19.90 seconds, West.

Range in Characteristics

Soil moisture: An Ustic moisture regime. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Thickness of the solum: more than 80 inches

Depth to secondary carbonates: 36 to 80 inches

Thickness of the mollic epipedon: 20 to 30 inches

Other features: Some pedons have a loamy fine sand overburden less than 6 inches thick

A horizon

Hue: 10YR

Value: 2 to 4

Chroma: 1 to 3

Texture: Fine sandy loam or sandy clay loam

Effervesence: None

Reaction: Moderately acid to slightly alkaline

Bt horizon

Hue: 7.5YR or 10YR

Value: 3 to 6

Chroma: 1 to 4

Texture: Fine sandy loam or sandy clay loam

Clay content: 18 to 28 percent

Effervesence: None

Reaction: Neutral to moderately alkaline

Btk horizon (where present)

Hue: 7.5YR or 10YR

Value: 4 to 6

Chroma: 2 to 6

Texture: Sandy clay loam

Clay content: 20 to 28 percent

Identifiable secondary carbonates: Amount—1 to 12 percent; kind—threads, masses, and nodules; size—fine; location—infused in matrix and throughout

Effervesence: None to slightly

Reaction: Neutral to moderately alkaline

2Btk horizon

Hue: 7.5YR to 2.5Y

Value: 4 to 8

Chroma: 2 to 6

Texture: Sandy clay loam

Clay content: 20 to 28 percent

Identifiable secondary carbonates: Amount—5 to 15 percent; kind—threads, masses, and nodules; size—fine or medium; location—infused in matrix and throughout

Effervesence: Slight to violent

Reaction: Slightly alkaline to strongly alkaline

Daggerhill Series

The Daggerhill series consists of very deep, excessively drained, rapidly permeable soils that formed in deep sandy eolian sediments on barrier islands. These soils are on undulating to strongly rolling foredunes and stabilized back-island dune fields. These soils are subject to rare flooding by high storm surge from strong tropical storms. Slope ranges from 2 to 12 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Hyperthermic, uncoated Ustic Quartzipsamments

Typical Pedon

Daggerhill fine sand, on a south facing, convex, 8 percent slope in rangeland at an elevation of 20 feet. (Colors are for dry soil unless otherwise stated.)

- A1—0 to 8 inches; brown (10YR 5/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose; 4 percent very fine and fine roots; 2 percent sand-sized seashell fragments; non-saline; noneffervescent; strongly alkaline; clear smooth boundary.
- A2—8 to 18 inches; brown (10YR 5/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose; 3 percent very fine and fine roots; 1 percent sand-sized seashell fragments; non-saline; noneffervescent; strongly alkaline; clear smooth boundary.
- C1—18 to 47 inches; pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; 2 percent very fine and fine roots; 1 percent sand-sized seashell fragments; non-saline; noneffervescent; strongly alkaline; gradual smooth boundary.
- C2—47 to 80 inches; pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; 1 percent very fine and fine roots; 7 percent sand-sized seashell fragments; non-saline; noneffervescent; strongly alkaline.

Type Location

Kenedy County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties, 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore, 4.5 miles southwest on Park Road 22 to the end of the paved road, 11.0 miles south along the beach (1 mile south of the 10-mile marker), and 1,400 feet northwest on side slope of dune in rangeland. South Bird Island Southeast, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 15 minutes, 55.1 seconds, North; Longitude: 97 degrees, 21 minutes, 14.4 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 cumulative days in normal years. It is also either moist in some or all parts for 180 days or more cumulative, or moist for 90 or more consecutive days in normal years.

Mean annual soil temperature: 74 to 76 degrees F

Particle-size control section (weighted average):

Clay content: 0 to 3 percent

Sand content: 95 to 99 percent

Other features: The particle-size control section has less than 5 percent silt plus clay.

A horizon

Hue: 10YR

Value: 5 to 7

Chroma: 2 to 4

Texture: Fine sand

Sand-sized seashell fragments: 1 to 7 percent

EC (dS/m): 0 to 2

SAR: 0 to 8, but typically less than 4

Effervescence: None

Reaction: Slightly alkaline to strongly alkaline

C horizon

Hue: 10YR

Value: 7 or 8

Chroma: 2 to 4

Texture: Fine sand

Redox concentrations: Amount—0 to 3 percent; size—fine or medium; contrast—distinct or prominent; boundary—clear or sharp; shades—brown, red, or yellow

Sand-sized seashell fragments: 1 to 10 percent

EC (dS/m): 0 to 2

SAR: 0 to 8, but typically less than 4

Effervescence: None

Reaction: Slightly alkaline to strongly alkaline

Delfina Series

The Delfina series consists of very deep, moderately well drained, moderately slowly permeable soils. These nearly level to gently sloping soils formed in sandy and loamy eolian deposits over calcareous loamy alluvium of Quaternary age on the Sand sheet Prairie of the South Texas Coastal Plain. Slope ranges from 0 to 5 percent. Mean annual air temperature is 72 degrees F, and mean annual precipitation is about 28 inches.

Taxonomic Class

Fine-loamy, mixed, superactive, hyperthermic Typic Paleustalfs

Typical Pedon

Delfina fine sandy loam, on a south facing convex, 0 to 1 percent slope in cropland at an elevation of 65 feet. (Colors are for dry soil unless otherwise noted.)

Ap—0 to 10 inches; brown (7.5YR 4/2) fine sandy loam, brown (7.5YR 5/2) dry; weak coarse prismatic structure parting to weak medium subangular blocky; slightly hard, friable; common fine roots; common fine tubular pores; slightly acid; clear smooth boundary.

A—10 to 16 inches; brown (7.5YR 4/4) fine sandy loam, brown (7.5YR 5/4) dry; weak coarse prismatic structure parting to weak medium subangular blocky; slightly hard, friable; common fine and medium roots; common fine and medium tubular pores; neutral; abrupt smooth boundary.

2Bt1—16 to 21 inches; dark brown (7.5YR 3/4) sandy clay loam, brown (7.5YR 4/4) dry; moderate coarse prismatic structure parting to moderate medium angular blocky; extremely hard, firm; common fine roots; common fine and medium

tubular pores; 20 percent distinct brown (7.5YR 4/2) clay films on faces of peds; 1 percent fine faint reddish brown (5YR 5/4) masses of oxidized iron with sharp boundaries in matrix; neutral; clear smooth boundary.

2Bt2—21 to 34 inches; brown (7.5YR 4/2) sandy clay loam, brown (7.5YR 5/2) dry; strong coarse prismatic structure parting to moderate medium subangular blocky; extremely hard, firm; few fine roots; few fine tubular pores; 22 percent distinct brown (7.5YR 4/2) clay films on faces of peds; 1 percent fine faint reddish brown (5YR 5/4) masses of oxidized iron with sharp boundaries in matrix; 1 percent fine masses of calcium carbonate; slight effervescence; moderately alkaline; gradual smooth boundary.

2Btk1—34 to 50 inches; brown (7.5YR 4/4) sandy clay loam, brown (7.5YR 5/4) dry; strong coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm; common fine roots; common fine tubular pores; 15 percent distinct brown (7.5YR 4/2) clay films on faces of peds; 11 percent medium distinct reddish brown (5YR 5/4) masses of oxidized iron with sharp boundaries in matrix; 11 percent medium prominent light olive brown (2.5Y 5/6) masses of iron depletions with sharp boundaries in matrix; 11 percent fine masses of calcium carbonate; slight effervescence; moderately alkaline; clear wavy boundary.

2Btk2—50 to 65 inches; light brown (7.5YR 6/4) sandy clay loam, pink (7.5YR 7/4) dry; strong coarse prismatic structure parting to moderate medium subangular blocky; hard, friable; few fine roots; common fine tubular pores; 8 percent distinct brown (7.5YR 4/2) clay films on faces of peds; 1 percent fine distinct reddish brown (5YR 5/4) masses of oxidized iron with sharp boundaries in matrix; 11 percent coarse prominent light olive brown (2.5Y 5/6) masses of iron depletions with sharp boundaries in matrix; 11 percent fine masses of calcium carbonate; slight effervescence; strongly alkaline; gradual smooth boundary.

2Btk3—65 to 80 inches; light brown (7.5YR 6/4) sandy clay loam, reddish yellow (7.5YR 7/6) dry; moderate coarse prismatic structure parting to moderate medium subangular blocky; hard, friable; few fine roots; common fine tubular pores; 3 percent distinct brown (7.5YR 4/2) clay films on faces of peds; 1 percent fine distinct reddish brown (5YR 5/4) masses of oxidized iron with sharp boundaries in matrix; 1 percent fine prominent light olive brown (2.5Y 5/6) masses of iron depletions with sharp boundaries in matrix; 1 percent fine masses of calcium carbonate; slight effervescence; moderately alkaline.

Type Location

Jim Wells County, Texas; from the intersection of U.S. Highway 281 and U.S. Highway 44 in Alice, 8.7 miles south on U.S. Highway 281, 3.8 miles east on FM 2508, and 250 feet south in cropland. Alice South, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 38 minutes, 40.00 seconds, North; Longitude: 98 degrees, 1 minute 30.00 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Mean annual soil temperature: 72 to 74 degrees F

Depth to secondary carbonates: 30 to 50 inches

Particle-size control section (weighted average):

Clay content: 25 to 35 percent

A horizon

Hue: 7.5YR or 10YR

Value: 4 or 5

Chroma: 2 to 4

Texture: Loamy fine sand or fine sandy loam

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Slightly acid or neutral

2Bt horizon

Hue: 5YR to 10YR

Value: 4 to 6

Chroma: 2 to 6

Texture: Sandy clay loam or clay loam

Clay content: 25 to 35 percent

Clay films: Amount—7 to 25 percent; location—on surface of peds; contrast—faint or distinct

Redox concentrations: Amount—few or common; size—fine or medium; contrast—faint or distinct; boundary—sharp

EC (dS/m): 0 to 5

SAR: 0 to 8

Effervescence: None to slight

Reaction: Slightly acid to moderately alkaline

2Btk horizon

Hue: 5YR to 10YR

Value: 5 to 7

Chroma: 3 to 6

Texture: Fine sandy loam or sandy clay loam

Clay content: 25 to 35 percent

Clay films: Location—on surface of peds; contrast—faint or distinct

Redox concentrations: Amount—few or common; size—fine or medium; contrast—faint or distinct; boundary—sharp

Redox depletions: Amount—none or few; size—fine or medium; contrast—faint or distinct, boundary—sharp

Calcium carbonate equivalent: 5 to 12 percent.

Identifiable secondary carbonate: Amount—few or common, size—fine or medium, location—in matrix

EC (dS/m): 0 to 5

SAR: 0 to 8

Effervescence: Slight to strong

Reaction: Slightly alkaline to strongly alkaline

Dietrich Series

The Dietrich series consists of very deep, poorly drained, slowly permeable soils that formed in loamy sediments of late Pleistocene age. These nearly level to gently sloping soils are on the Ingleside Barrier strand plain of the South Texas Coastal Plain. Slope ranges from 0 to 2 percent. Mean annual air temperature is about 71 degrees F, and mean annual precipitation is about 33 inches.

Taxonomic Class

Fine-loamy, mixed, active, hyperthermic Typic Natraqualfs

The Dietrich loamy fine sand, 0 to 2 percent slopes map unit, DsB, is a taxadjunct to the series. It classifies as loamy, mixed, active, hyperthermic Arenic Natraqualfs. The current Keys to Soil Taxonomy, 10th Edition, does not allow for this classification.

Typical Pedon

Dietrich fine sand, on a south facing, nearly level 1 percent slope in rangeland; elevation of 9 feet. (Colors are for dry soil unless otherwise stated.)

- A—0 to 9 inches; grayish brown (10YR 5/2) fine sand, light brownish gray (10YR 6/2) dry; single grain; slightly hard, very friable; common fine and medium roots; neutral; clear wavy boundary.
- E—9 to 12 inches; grayish brown (10YR 5/2) fine sand, light gray (10YR 7/2) dry; single grain; slightly hard, very friable; few fine and medium roots; neutral; abrupt wavy boundary.
- Btng—12 to 18 inches; grayish brown (10YR 5/2) sandy clay loam, light brownish gray (10YR 6/2) dry; moderate coarse columnar structure parting to moderate fine and medium blocky; thin caps of fine sandy loam on columns; very hard, very firm, sticky and plastic; few roots between peds; surfaces of peds partially coated with thin very dark gray (10YR 3/1) clay films; common fine and medium prominent red (2.5YR 5/8) masses of oxidized iron with sharp boundaries on faces of peds; common fine and medium prominent yellow (10YR 7/8) masses of oxidized iron with diffuse boundaries on faces of peds; common fine and medium faint gray (10YR 6/1) iron depletions with clear boundaries next to masses of oxidized iron; slightly alkaline; clear wavy boundary.
- Btnzg1—18 to 30 inches; grayish brown (2.5Y 5/2) sandy clay loam, light brownish gray (2.5Y 6/2) dry; moderate medium and coarse angular blocky structure; very hard, very firm, sticky and plastic; peds partially coated with thin dark gray (10YR 4/1) clay films; few fine and medium prominent red (2.5YR 5/8) masses of oxidized iron with sharp boundaries on faces of peds; few fine and medium prominent yellow (10YR 7/8) masses of oxidized iron with diffuse boundaries on faces of peds; few fine and medium faint gray (10YR 6/1) iron depletions with clear boundaries next to masses of oxidized iron; few fine white (2.5Y 8/1) masses of salt crystals; saline; moderately alkaline; gradual smooth boundary.
- Btnzg2—30 to 45 inches; light brownish gray (2.5Y 6/2) sandy clay loam, light gray (2.5Y 7/2) dry; weak coarse blocky structure; very hard, firm; few thin clay films on surfaces of peds; few streaks of gray sandy material; few fine iron-manganese concretions; few fine and medium prominent yellow (10YR 7/8) masses of oxidized iron with diffuse boundaries on faces of peds; few fine prominent brown (10YR 4/3) masses of oxidized iron with clear boundaries on faces of peds; few fine white (2.5Y 8/1) masses of salt crystals; saline; moderately alkaline; gradual smooth boundary.
- BCKzg—45 to 80 inches; light brownish gray (2.5Y 6/2) sandy clay loam, light gray (2.5Y 7/2) dry; massive; very hard, firm; few fine iron-manganese nodules; few fine prominent yellow (10YR 7/8) masses of oxidized iron with diffuse boundaries on faces of peds; few fine prominent brown (10YR 4/3) masses of oxidized iron with clear boundaries on faces of peds; few fine and medium nodular calcium carbonate concretions; few fine white (2.5Y 8/1) masses of salt crystals; saline; moderately alkaline.

Type Location

Aransas County, Texas; from the intersection of Farm Road 3036 and Farm Road 1781 in Fulton, 0.75 mile north on Farm Road 1781, and 100 feet west in native rangeland. Rockport, Texas USGS topographic quadrangle; NAD 83; Latitude: 28 degrees, 04 minutes, 30.7 seconds, North; Longitude: 97 degrees, 04 minutes, 41.9 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. The soil moisture control section remains saturated with water and has reducing conditions from a few days to several weeks during the fall and spring months.

Mean annual soil temperature: 72 to 74 degrees F

Depth to secondary calcium carbonate: 30 to 60 inches

Depth to Natric horizon: 3 to 19 inches

Depth to salt accumulations: 3 to 30 inches

Depth to redox concentrations: 3 to 19 inches

Depth to redox depletions: 3 to 19 inches

Particle-size control section (weighted average):

Clay content: 25 to 35 percent

CEC/clay ratio: 0.40 to 0.60

A and E horizon

Hue: 10YR

Value: 5 to 7

Chroma: 1 to 3

Texture: Fine sand, loamy fine sand, or fine sandy loam

EC (dS/m): 0 to 4

ESP: 0 to 8

Reaction: Slightly acid to slightly alkaline

Btng and Btnzg horizons

Hue: 10YR or 2.5Y

Value: 4 to 7

Chroma: 1 or 2

Texture: Loam, sandy clay loam, or clay loam

Clay content: 25 to 35 percent

Redox concentrations: Amount—2 to 20 percent; shades—brown, yellow, or red

Redox depletions: Amount—1 to 10 percent; shades—gray

Identifiable secondary carbonate: Amount—0 to 15 percent; size—fine or medium

EC (dS/m): 1 to 8

ESP: 15 to 40

Reaction: Neutral to moderately alkaline

BCKzg horizon

Hue: 10YR or 2.5Y

Value: 6 to 8

Chroma: 1 to 3

Texture: Fine sandy loam, loam, sandy clay loam, or sandy clay

Clay content: 15 to 40 percent

Redox concentrations: Amount—2 to 20 percent; shades—brown, yellow, or red

Redox depletions: Amount—0 to 10 percent; shades—gray
Identifiable secondary carbonate: Amount 0 to 3; size—fine or medium
EC (dS/m): 1 to 8
ESP: 15 to 40
Reaction: Moderately alkaline

Edroy Series

The Edroy series consists of very deep, poorly drained, very slowly permeable soils that formed in clayey over loamy fluviomarine deposits of Pleistocene age. These nearly level soils are in enclosed depressions. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Fine, smectitic, hyperthermic Ustic Epiaquerts

Typical Pedon

Edroy clay, on a 0 to 1 percent slope in cropland; elevation is 37 feet. (Colors are for moist soil, unless otherwise stated.)

- Ap—0 to 7 inches; black (2.5Y 2.5/1) clay, very dark gray (10YR 3/1) dry; weak fine subangular blocky and moderate medium granular structure; very hard, firm; few very fine roots; common fine vesicular pores; neutral; clear smooth boundary.
- Bw—7 to 18 inches; black (2.5Y 2.5/1) clay, very dark gray (10YR 3/1) dry; moderate medium angular blocky structure; very hard, firm; few very fine tubular pores; 1 percent faint pressure faces; 1 percent faint sand coats on vertical faces of peds; 1 percent fine prominent spherical dark brown (7.5YR 3/2) iron-manganese nodules; 1 percent fine prominent strong brown (7.5YR 4/6) masses of iron-manganese with sharp boundaries lining pores; neutral; gradual smooth boundary.
- Bss1—18 to 41 inches; very dark gray (2.5Y 3/1) clay, dark gray (10YR 4/1) dry; moderate medium angular blocky structure; very hard, very firm; few very fine tubular pores; 5 percent faint pressure faces; 15 percent faint slickensides; 1 percent faint sand coats on vertical faces of peds; 1 percent fine prominent dark brown (7.5YR 3/3) masses of iron-manganese with sharp boundaries in matrix; neutral; gradual wavy boundary.
- Bss2—41 to 57 inches; 80 percent dark gray (10YR 4/1) and 20 percent very dark gray (10YR 3/1) clay, 80 percent gray (10YR 5/1) and 20 percent dark gray (10YR 4/1) dry; moderate coarse subangular blocky structure; very hard, very firm; 10 percent faint pressure faces; 10 percent distinct slickensides; 1 percent fine faint black (10YR 2/1) masses of iron-manganese with sharp boundaries in matrix; slightly alkaline; gradual wavy boundary.
- Bkss—57 to 70 inches; 90 percent light gray (2.5Y 7/2) and 10 percent dark gray (10YR 4/1) clay, 90 percent light gray (2.5Y 7/2) and 10 percent gray (10YR 5/1) dry; weak very coarse subangular blocky structure; very hard, very firm; 1 percent faint pressure faces; 5 percent distinct slickensides; 1 percent fine distinct black (10YR 2/1) masses of iron-manganese with sharp boundaries in matrix; 1 percent fine masses of calcium carbonate; 1 percent fine weakly cemented nodules of calcium carbonate; moderately alkaline; wavy boundary.
- 2Bk—70 to 80 inches; pale yellow (2.5Y 7/3) sandy clay loam, pale yellow (2.5Y 7/3) dry; massive; hard, firm; 3 percent fine and medium masses of calcium carbonate; 1 percent fine and medium weakly cemented nodules of calcium carbonate; slight effervescence; moderately alkaline.

Type Location

Kleberg County, Texas; from the intersection of Texas Highway 70 and Texas Highway 892 east of Bishop in Nueces County, 1.3 miles west on Texas Highway 70, 1 mile south on private farm road, and 30 feet south in depression in cropland. Concordia, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 33 minutes, 32 seconds, North; Longitude: 97 degrees, 41 minutes, 2.8 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime.
Mean annual soil temperature: 72 to 74 degrees F
Depth to sandy or loamy sediments: 40 to 60 inches
Depth to secondary calcium carbonate: 25 to 62 inches
Particle-size control section (weighted average):
Clay content: 35 to 50 percent

A horizon

Hue: 10YR or 2.5Y
Value: 2 to 4
Chroma: 1
Texture: Clay loam, sandy clay, or clay
Clay content: 35 to 45 percent
Redox concentrations: Amount—0 to 2 percent; shades—brown
Iron-manganese concentrations: Amount—0 to 1 percent; kind—nodules
EC (dS/m): 0 to 2
SAR: 0 to 2
Reaction: Slightly acid or neutral

Bw horizon

Hue: 10YR or 2.5Y
Value: 2 to 4
Chroma: 1 or 2
Texture: Clay loam, sandy clay, or clay
Clay content: 35 to 45 percent
Redox concentrations: Amount—0 to 5 percent; shades—brown
Redox depletions: Amount—0 to 2 percent; shades—gray
Iron-manganese concentrations: Amount—0 to 2 percent; kind—nodules
EC (dS/m): 0 to 2
SAR: 0 to 4
Reaction: Neutral or slightly alkaline

Bss horizon

Hue: 10YR or 2.5Y
Value: 2 to 5
Chroma: 1 or 2
Texture: Clay
Clay content: 40 to 55 percent
Redox concentrations: Amount—0 to 5 percent; shades—brown
Redox depletions: Amount—0 to 2 percent; shades—gray
Iron-manganese concentrations: Amount—0 to 2 percent; kind—nodules
EC (dS/m): 0 to 2
SAR: 0 to 8
Reaction: Neutral to moderately alkaline

Bkss horizon

Hue: 10YR or 2.5Y

Value: 4 to 7

Chroma: 1 or 2

Texture: Clay

Clay content: 40 to 55 percent

Redox concentrations: Amount—0 to 5 percent; shades—brown

Redox depletions: Amount—0 to 2 percent; shades—gray

Iron-manganese concentrations: Amount—0 to 2 percent; kind—nodules

Identifiable secondary carbonates: Amount—0 to 5 percent; kind—masses or nodules

EC (dS/m): 0 to 2

SAR: 2 to 8

Effervescence: None to strong

Reaction: Neutral to moderately alkaline

2Bk horizon (where present)

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 1 to 3

Texture: Fine sandy loam, loamy fine sand, sandy clay loam, or clay loam

Clay content: 15 to 30 percent

Redox concentrations: Amount—0 to 5 percent; shades—brown

Redox depletions: Amount—0 to 2 percent; shades—gray

Iron-manganese concentrations: Amount—0 to 2 percent; kind—nodules

Identifiable secondary carbonates: Amount—0 to 5 percent; kind—masses or nodules

EC (dS/m): 0 to 2

SAR: 2 to 14

Effervescence: None to strong

Reaction: Slightly alkaline or moderately alkaline

Estella Series

The Estella series consists of very deep, somewhat poorly drained, moderately rapid permeable. These nearly level soils formed in sandy eolian deposits over loamy sediments on the Sand sheet of the South Texas Coastal Plain. Slopes are 0 to 1 percent. Mean annual air temperature is about 73 degrees F, and mean annual precipitation is about 26 inches.

Taxonomic Class

Coarse-loamy, mixed, active, hyperthermic OxyAquic Haplustalfs

Typical Pedon

Estella fine sand, on an east facing, linear, 0 to 1 percent slope in rangeland at an elevation of 33 feet. (Colors are for dry soil unless otherwise stated.) (fig. 39)

A1—0 to 10 inches; brown (10YR 4/3) fine sand, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure parting to single grain; loose; 7 percent very fine and fine roots; 6 percent very fine and fine pores; 3 percent fine distinct brownish yellow (10YR 6/6) masses of oxidized iron along root channels; moderately acid; clear wavy boundary.

A2—10 to 17 inches; brown (10YR 4/3) fine sand, pale brown (10YR 6/3) dry; weak coarse prismatic structure parting to weak fine and medium subangular blocky;

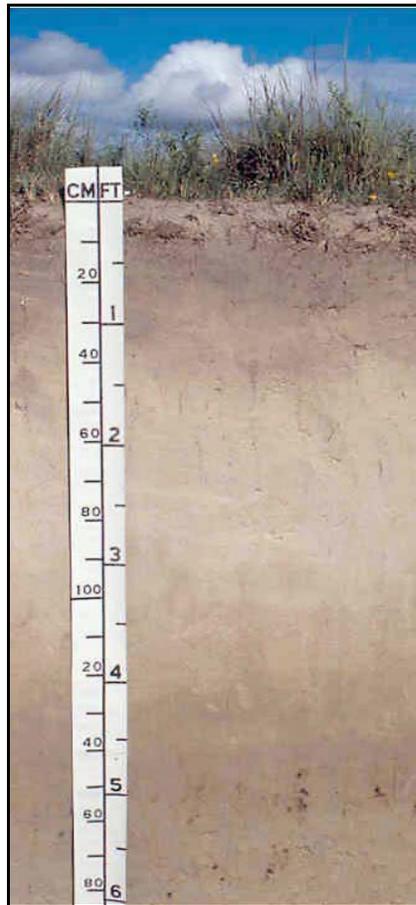


Figure 39.—Profile of Estella fine sand in an area of Estella fine sand, 0 to 1 percent slopes. The argillic horizon begins at a depth of about 5 feet. (Scale in CM-centimeters and FT-feet)

soft, very friable; 5 percent very fine and fine, and 2 percent medium roots; 5 percent very fine and fine pores; 7 percent fine distinct yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) masses of oxidized iron along root channels; slightly acid; clear wavy boundary.

E1—17 to 36 inches; pale brown (10YR 6/3) fine sand, light gray (10YR 7/2) dry; weak very coarse prismatic structure parting to weak fine and medium subangular blocky; soft, very friable; 5 percent very fine and fine roots; 2 percent very fine and fine pores; 10 percent fine and medium distinct yellowish brown (10YR 5/6) and 3 percent fine distinct light yellowish brown (10YR 6/4) masses of oxidized iron along root channels; neutral; gradual wavy boundary.

E2—36 to 57 inches; very pale brown (10YR 7/3) fine sand, very pale brown (10YR 8/3) dry; weak very coarse prismatic structure parting to weak fine and medium subangular blocky; soft, very friable; 3 percent very fine and fine roots; 3 percent very fine and fine pores; 3 percent fine distinct brownish yellow (10YR 6/6) masses of oxidized iron along root channels; 5 percent medium faint light gray (10YR 7/2) iron depletions; slightly alkaline; abrupt smooth boundary.

2Btg1—57 to 73 inches; light brownish gray (2.5Y 6/2) loamy fine sand, pale yellow (2.5Y 8/2) dry; weak very coarse and coarse prismatic structure parting to weak fine and medium subangular blocky; soft, very friable; 2 percent very fine and fine roots; 5 percent very fine and fine pores; 4 percent fine distinct clay bridging along root channels; 6 percent fine and medium black (2.5Y 2.5/1) iron-

manganese masses with diffuse boundaries; 10 percent fine and medium distinct light yellowish brown (2.5Y 6/4), 4 percent fine and medium distinct olive yellow (2.5Y 6/6) and 2 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron on surfaces along pores and root channels; 1 percent fine distinct dark grayish brown (10YR 4/2) iron depletions; slightly sodic; slightly alkaline; clear smooth boundary.

2Btg2—73 to 80 inches; light brownish gray (2.5Y 6/2) fine sandy loam, pale yellow (2.5Y 8/3) dry; weak coarse prismatic structure parting to weak fine and medium subangular blocky; soft, very friable; 2 percent very fine and fine roots; 3 percent very fine and fine pores; 2 percent fine distinct clay bridging along root channels; 5 percent fine and medium black (2.5Y 2.5/1) iron-manganese masses with clear and diffuse boundaries; 2 percent fine faint light yellowish brown (2.5Y 6/4) and 1 percent fine and medium distinct light olive brown (2.5Y 5/3) masses of oxidized iron on surfaces along pores and root channels; slightly sodic; moderately alkaline.

Type Location

Kenedy County, Texas; from the intersection of La Parra Avenue and U.S. Highway 77 in Sarita, 8.9 miles south on U.S. Highway 77 to ranch gate, 0.8 mile east on ranch road, 0.5 mile north on ranch road, 1.4 miles northeast on ranch road, 0.6 mile northwest on ranch road, and 200 feet west in rangeland. Turcotte, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 06 minutes, 44.0 seconds, North; Longitude: 97 degrees, 46 minutes, 00.0 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 cumulative days in normal years. The soil moisture control section is also either moist in some or all parts for 180 cumulative days or more, or moist for 90 consecutive days or more in normal years. November through April are the driest months, with a second low in July, while September is the wettest.

Mean annual soil temperature: 72 to 74 degrees F

Depth to argillic horizon: 45 to 70 inches

Depth to redox concentrations: 0 to 20 inches

Depth to redox depletions: 36 to 80 inches

Depth to endosaturation: 20 to 80 inches, from November to April

Particle-size control section (weighted average):

Clay content: 10 to 18 percent

Sand content: 75 to 85 percent

CEC/clay ratio: 0.40 to 0.60

A horizon

Hue: 10YR

Value: 4 to 6

Chroma: 2 or 3

Texture: Fine sand or loamy fine sand

Clay content: 2 to 7 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—faint to prominent; boundary—clear or gradual; location—throughout; shades—brown or yellow

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Moderately acid to neutral

E horizon

Hue: 10YR

Value: 6 to 8

Chroma: 2 or 3

Texture: Fine sand or loamy fine sand

Clay content: 2 to 7 percent

Redox concentrations: Amount—few or common; size—fine or medium; contrast—faint or distinct; shades—brown or yellow

Redox depletions: Amount—none or few, mainly in the lower E horizons; size—fine; contrast faint or distinct; boundary—clear or gradual; location—throughout; shades—gray

EC (dS/m): 0 to 4

SAR: 0 to 4

Reaction: Slightly acid to slightly alkaline

2Btg horizon

Hue: 10YR or 2.5Y

Value: 5 to 8

Chroma: 2 or 3

Texture: Loamy fine sand or fine sandy loam

Clay content: 10 to 18 percent

Redox concentrations: Amount—few or common; size—fine or medium; contrast—faint or distinct; boundary—clear or gradual; location—throughout; shades—brown or yellow

Redox depletions: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundary—clear or gradual; location—throughout; shades—gray

EC (dS/m): 0 to 4

SAR: 0 to 12

Reaction: Neutral to moderately alkaline

Falfurrias Series

The Falfurrias series consists of very deep, excessively drained, rapidly permeable soils that formed in deep sandy eolian deposits of Holocene age. These soils are on nearly level to steep vegetated dunes on the Sand sheet Prairie of the South Texas Coastal Plain. Slope ranges mainly from 0 to 8 percent, but range up to 15 percent on hummocky vegetated sand dunes. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 25 inches.

Taxonomic Class

Mixed, hyperthermic Typic Ustipsamments

Typical Pedon

Falfurrias fine sand, on a southwest facing, convex, 3 percent slope in rangeland at an elevation of 67 feet. (Colors are for dry soil unless otherwise stated.) (fig. 40)

A1—0 to 3 inches, brown (10YR 5/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; common fine roots; slightly acid; clear smooth boundary.

A2—3 to 15 inches, brown (10YR 4/3) fine sand, brown (10YR 5/3) dry; single grain; loose; common fine roots; moderately acid; gradual smooth boundary.



Figure 40.—Profile of Falfurrias fine sand in an area of Falfurrias-Cayo complex, 0 to 8 percent slopes. Falfurrias soils are excessively drained and support large motts of live oak trees. (Scale in CM-centimeters, and FT-feet)

- A3—15 to 38 inches, yellowish brown (10YR 5/4) fine sand, light yellowish brown (10YR 6/4) dry; single grain; loose; common fine to coarse roots; strongly acid; gradual smooth boundary
- C1—38 to 57 inches, pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; few fine black iron-manganese stains; few very fine roots; strongly acid; diffuse smooth boundary.
- C2—57 to 80 inches, pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; few fine brownish yellow (10YR 6/6) masses of oxidized iron; strongly acid.

Type Location

Brooks County, Texas; from the intersection of U.S. Highway 281 and Farm Road 755 in Rachal, 4.05 miles north on U.S. Highway 281 to ranch gate of the Encino Division of the King Ranch, 7.5 miles east on ranch road; 4.7 miles northeast on ranch road, and 100 feet west of road in rangeland. Sarita SW, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 00 minutes, 09.7 seconds, North; Longitude: 97 degrees, 59 minutes, 09.8 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. November through April are the driest months, with a second low rainfall period in July and August, while September is the wettest.

Particle-size control section (weighted average):

Clay content: Trace to 5 percent

Sand content: 91 to 99 percent

A horizon

Hue: 7.5YR or 10YR

Value: 4 to 7

Chroma: 2 to 4

Texture: Fine sand or sand

Clay content: 5 percent or less

Base saturation: 58 to 100 percent

Reaction: Strongly acid to neutral

C horizon

Hue: 7.5YR or 10YR

Value: 6 to 8

Chroma: 2 to 4

Texture: Fine sand or sand

Clay content: 5 percent or less

Redox concentrations: Amount—0 to 2 percent; size—fine; contrast—distinct; boundaries—sharp

Base saturation: 62 to 100 percent

Reaction: Strongly acid to neutral

Gertrudis Series

The Gertrudis series consists of very deep, moderately permeable, well drained soils that have formed in loamy eolian deposits over calcareous loamy alluvium of Quaternary age. These nearly level to gently sloping soils are on erosional terrace remnants. Slope ranges from 0 to 3 percent. Mean annual temperature is about 72 degrees F, and the mean annual precipitation is about 26 inches.

Taxonomic Class

Fine-loamy, mixed, active, hyperthermic Typic Calciustolls

Typical Pedon

Gertrudis fine sandy loam, on a north-facing, convex, 2 percent slope in rangeland. (Colors are for dry soil unless otherwise noted.) (fig. 41)

A1—0 to 7 inches; very dark grayish brown (10YR 3/2) fine sandy loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; moderately hard, friable; many fine and common medium roots; many fine and medium tubular pores; strongly effervescent; moderately alkaline; clear smooth boundary.

A2—7 to 17 inches; very dark brown (10YR 2/2) very fine sandy loam, very dark grayish brown (10YR 3/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable; many fine and common medium roots; many fine



Figure 41.—Profile of Gertrudis fine sandy loam, in area of Gertrudis fine sandy loam, 0 to 3 percent slopes. Calcium carbonate masses and concretions begin at a depth of about 48 inches. (Scale in Inches)

and common medium tubular pores; 3 percent fine faint threadlike white (10YR 8/1) calcium carbonate masses; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk1—17 to 25 inches; dark grayish brown (10YR 4/2) sandy clay loam, grayish brown (10YR 5/2) dry; weak fine and medium prismatic structure parting to weak fine subangular blocky; slightly hard, friable; common very fine and fine roots; common very fine and fine tubular pores; 3 percent fine faint threadlike white (10YR 8/1) calcium carbonate masses, and 1 percent medium distinct white (10YR 8/1) calcium carbonate masses; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk2—25 to 40 inches; grayish brown (10YR 5/2) sandy clay loam, light brownish gray (10YR 6/2) dry; weak coarse prismatic structure parting to weak fine and medium subangular blocky; slightly hard, friable; common fine roots; common fine tubular pores, 5 percent fine faint threadlike white (10YR 8/1) calcium carbonate masses, and 2 percent fine distinct white (10YR 8/1) calcium carbonate masses; strongly effervescent; moderately alkaline; clear smooth boundary.

2Bk1—40 to 50 inches; pale brown (10YR 6/3) clay loam, pale brown (10YR 6/3) dry; weak coarse prismatic structure parting to moderate fine and medium subangular blocky; slightly hard, friable; common fine roots; common fine tubular pores; 8 percent fine faint white (10YR 8/1) calcium carbonate masses; strongly effervescent; moderately alkaline; clear smooth boundary.

2Bk2—50 to 68 inches; pale brown (10YR 6/3) clay loam, light gray (10YR 7/2) dry; weak fine and medium subangular blocky structure; moderately hard, friable; common fine and medium roots; common fine and medium tubular pores; 4 percent fine faint white (10YR 8/1) calcium carbonate finely disseminated throughout, 8 percent medium distinct irregular white (10YR 8/1) calcium carbonate masses, and 6 percent coarse prominent white (10YR 8/1) calcium carbonate masses; violently effervescent; moderately alkaline; clear smooth boundary.

2Bk3—68 to 80 inches; light brownish gray (10YR 6/2) loam, light gray (10YR 7/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable; 3 percent fine distinct irregular white (10YR 8/1) calcium carbonate masses, 7 percent fine faint white (10YR 8/1) calcium carbonate finely disseminated throughout, and 15 percent coarse prominent white (10YR 8/1) calcium carbonate masses; violently effervescent; moderately alkaline.

Type Location

Kleberg County, Texas; from the intersection of State Highway 141 and U.S. Highway 77 in Kingsville, 9.05 miles west on State Highway 141 to ranch road, 0.85 miles north on ranch road, 1.61 mile northwest on ranch road, 0.9 mile south on ranch road, and 100 feet east in rangeland. Kingsville West, Texas USGS topographic quadrangle; NAD 83; Latitude, 27 degrees, 32 minutes, 58.30 seconds, North; Longitude, 97 degrees, 59 minutes, 54.3 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Mean annual soil temperature: 72 to 74 degrees F

Depth to secondary calcium carbonates: 6 to 17 inches

Particle-size control section (weighted average):

Clay content: 19 to 27 percent

A horizon

Hue: 10YR

Value: 2 to 5

Chroma: 2

Texture: Fine sandy loam, very fine sandy loam, or loam

Clay content: 14 to 17 percent

EC (dS/m): 0 to 1

SAR: 0 to 1

Effervescence: Slightly or strongly

Reaction: Neutral to moderately alkaline

Bk horizon

Hue: 10YR or 2.5Y

Value: 3 to 7

Chroma: 2 to 4

Texture: Fine sandy loam, loam, sandy clay loam, or clay loam

Clay content: 19 to 32 percent

Identifiable secondary carbonates: Amount—2 to 25 percent; size—fine or medium;
kind—finely disseminated, irregular threadlike, and masses; location—throughout

EC (dS/m): 0 to 1

SAR: 0 to 2

Effervescence: Strongly or violently

Reaction: Slightly alkaline or moderately alkaline

2Bk or 2BCK horizons (where present)

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 2 to 4

Texture: Fine sandy loam, loam, sandy clay loam, or clay loam

Clay content: 17 to 32 percent

Identifiable secondary carbonates: Amount—2 to 25 percent; size—fine, medium,
and coarse; kind—finely disseminated, irregular threadlike, and masses;
location—throughout

EC (dS/m): 0 to 1

SAR: 0 to 2

Effervescence: Strongly to violently

Reaction: Slightly alkaline or moderately alkaline

Greenhill Series

The Greenhill series consists of very deep, excessively drained, rapidly permeable soils that formed in deep, sandy, eolian sediments on barrier islands. These soils are on undulating to strongly rolling foredunes and stabilized back-island dune fields. These soils are subject to rare flooding by high storm surge from strong tropical storms. Slope ranges from 2 to 12 percent. Mean annual temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Hyperthermic, uncoated Ustic Quartzipsamments

Typical Pedon

Greenhill fine sand—on a south facing, convex, 8 percent slope in rangeland at an elevation of 20 feet. (Colors are for dry soil unless otherwise stated.) (fig. 42)

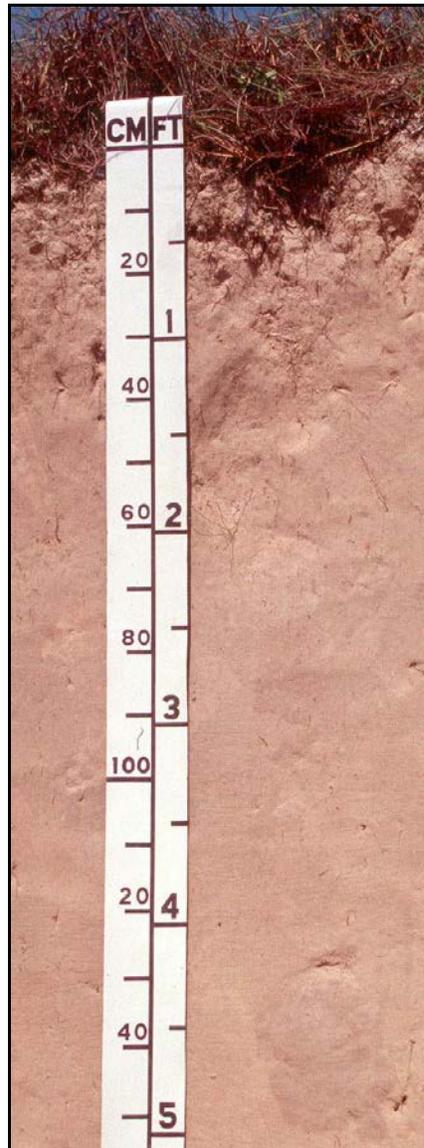


Figure 42.—Profile of Greenhill fine sand, 2 to 12 percent slopes, rarely flooded. A krotovina, or animal burrow, can be seen between a depth of 4 and 5 feet. (Scale in CM-centimeters and FT-feet)

- A1—0 to 10 inches; brown (10YR 4/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose; 3 percent very fine and fine roots and 1 percent medium roots; non-saline; slightly acid; clear wavy boundary.
- A2—10 to 28 inches; brown (10YR 5/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose; 2 percent very fine and fine roots; non-saline; moderately acid; gradual smooth boundary.
- C1—28 to 43 inches; pale brown (10YR 6/3) fine sand, light gray (10YR 7/2) dry; single grain; loose; 1 percent very fine and fine roots; 3 percent very pale brown (10YR 7/3) krotovina; non-saline; moderately acid; gradual smooth boundary.
- C2—43 to 60 inches; pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; 1 percent very fine roots; 4 percent light gray (10YR 7/2) krotovina; non-saline; moderately acid; gradual smooth boundary.

C3—60 to 80 inches; very pale brown (10YR 7/3) fine sand, very pale brown (10YR 8/3) dry; single grain; loose; 1 percent very fine roots; 1 percent fine and medium prominent reddish yellow (7.5YR 6/6) and 1 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron with sharp boundaries lining pores; non-saline; moderately acid.

Type Location

Kleberg County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties, 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore, 0.8 mile southwest on Park Road 22 to the intersection of Novillo and Bird Island Basin Road, 0.5 mile east and northeast on caliche and shell road, and 200 feet east on slope of dune ridge in rangeland. South Bird Island Basin, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 27 minutes, 44.8 seconds, North; Longitude: 97 degrees, 17 minutes, 01.5 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 cumulative days in normal years. It is also either moist in some or all parts for 180 days or more cumulative, or moist for 90 or more consecutive days in normal years.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 24 to 80 inches

Particle-size control section (weighted average):

Clay content: 0 to 3 percent

Sand content: 95 to 99 percent

Other features: The particle-size control section has less than 5 percent silt plus clay.

A horizon

Hue: 10YR

Value: 6 or 7, 4 to 6 moist

Chroma: 3

Texture: Fine sand

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Strongly acid to neutral

C horizon

Hue: 10YR

Value: 7 or 8, 6 or 7 moist

Chroma: 2 or 3

Texture: Fine sand

Redox concentrations: Amount—0 to 5 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown, red, or yellow

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Strongly acid to neutral

Inc cell Series

The Inc cell series consists of very deep, very poorly drained, very slowly permeable soils that formed in loamy alluvium of Quaternary age. These soils are in depressions of the South Texas Coastal Plain. Slopes are 0 to 1 percent. Mean

annual air temperature is 73 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Fine-loamy, mixed, superactive, hyperthermic Cumulic Endoaquolls

Typical Pedon

Incell clay, in a nearly level depression with less than 1 percent slope in rangeland at an elevation of 13 feet. (Colors are for moist soil unless otherwise stated.)

A1—0 to 6 inches; black (10YR 2/1) clay, dark gray (10YR 4/1) dry, weak fine blocky structure; hard, firm; many fine roots; neutral; abrupt smooth boundary.

A2—6 to 25 inches; black (10YR 2/1) clay, dark gray (10YR 4/1) dry, weak fine subangular blocky structure; very hard, very firm; few fine roots; few fine faint olive (5Y 5/6) masses of oxidized iron; neutral; abrupt smooth boundary.

Bkg—25 to 60 inches; grayish brown (2.5Y 5/2) sandy clay loam, light brownish gray (2.5Y 6/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable; many fine distinct light olive brown (2.5Y 5/6) masses of oxidized iron; few fine nodules of calcium carbonate; strongly effervescent; moderately alkaline; clear smooth boundary.

Bck—60 to 80 inches; light brownish gray (2.5Y 6/2) sandy clay loam, light gray (2.5Y 7/2) dry; weak fine subangular blocky structure; hard, firm, common fine and medium prominent dark yellowish brown (10YR 4/6) and brownish yellow (10YR 6/6) masses of oxidized iron; few fine and medium iron-manganese masses; few fine nodules of calcium carbonate; strongly effervescent; moderately alkaline.

Type Location

Willacy County, Texas; from the intersection of U.S. Highway 77 and Texas Highway 186 in Raymondville; 14 miles east on Texas Highway 186 to the intersection with Farm Road 497; 4 miles east on Farm Road 497; 500 feet north of road in center of a depression in rangeland. Willamar, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 29 minutes, 46.7 seconds, North; Longitude: 97 degrees, 32 minutes, 30.2 seconds, West.

Range in Characteristics

Soil moisture: These soils are saturated or covered with water most of the year. The permanent water table is at or near the soil surface. During periods of extreme drought they are dry in the upper 12 inches.

Particle-size control section (weighted average):

Clay content: 25 to 35 percent

A horizon

Hue: 10YR

Value: 2 to 4

Chroma: 1

Texture: Clay or sandy clay

EC(dS/m): 0 to 4

SAR: 0 to 6

Reaction: Slightly acid or neutral

B horizon

Hue: 10YR to 5Y

Value: 3 to 6

Chroma: 1 to 3

Texture: Sandy loam, loam, sandy clay loam, or clay loam

Redox concentrations: Amount—few to many; size—fine to coarse; contrast—distinct or prominent; shades—brown or yellow

Redox depletions: Amount—few to many; size—fine to coarse; contrast—distinct or prominent; shades—gray

EC(dS/m): 0 to 2

SAR: 0 to 10

Reaction: Slightly alkaline or moderately alkaline in the upper part, moderately alkaline or strongly alkaline in the lower part

BC horizon

Hue: 2.5Y or 5Y

Value: 4 to 7

Chroma: 1 to 4

Texture: Fine sandy loam, sandy loam, loam, sandy clay loam, or clay loam

Redox concentrations: Amount—few to many; size—fine to coarse; contrast—distinct or prominent; shades—brown

EC(dS/m): 0 to 2

SAR: 0 to 15

Reaction: Moderately alkaline or strongly alkaline

Note: Some pedons are calcareous throughout and contain a few calcium carbonate concretions.

Lalinda Series

The Lalinda series consists of very deep, well drained, moderately slowly permeable soils that formed in loamy, eolian deposits. These nearly level to sloping soils are on convex sloping coastal ridges. Slope ranges from 1 to 8 percent. Mean annual air temperature is about 73 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Fine-loamy, mixed, active, hyperthermic Typic Haplustepts

Typical Pedon

Lalinda fine sandy loam, on a convex ridge; 3 percent slope in rangeland at an elevation of 6 feet. (Colors are for dry soil unless otherwise stated.)

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam, grayish brown (10YR 5/2) dry; moderate fine granular and moderate fine and medium subangular blocky structure; very friable, hard; many fine roots; 2 percent medium pale brown (10YR 6/3) redox concentrations along lamina or strata surfaces; violently effervescent; slightly alkaline; clear smooth boundary.

A2—5 to 10 inches; dark grayish brown (2.5Y 4/2) fine sandy loam, grayish brown (2.5Y 5/2) dry; weak fine granular and weak fine and medium subangular blocky structure; very friable, slightly hard; many fine roots; 2 percent pale brown (10YR 6/3) redox concentrations along lamina or strata surfaces; violently effervescent; slightly alkaline; clear smooth boundary.

Bz1—10 to 30 inches; dark grayish brown (2.5Y 4/2) fine sandy loam, light brownish gray (2.5Y 6/2) dry; moderate fine and medium subangular blocky structure; friable, slightly hard; many fine roots; 2 percent light brownish gray (10YR 6/2) redox depletions along lamina or strata surfaces; 20 percent fine salt masses; slight effervescence; slightly alkaline; gradual smooth boundary.

Bz2—30 to 65 inches; grayish brown (2.5Y 5/2) loam, light brownish gray (2.5Y 6/2) dry; moderate fine and medium subangular blocky structure; friable, soft; common very fine to coarse roots; many fine pores; 25 percent fine salt masses; slightly effervescence; slightly alkaline; clear smooth boundary.

BCz—65 to 80 inches; light brownish gray (2.5Y 6/2) sandy clay loam, light gray (2.5Y 7/2) dry; weak medium subangular blocky structure; friable, hard; 7 percent medium grayish brown (2.5Y 5/2) redox depletions along lamina or strata surfaces; 20 percent fine salt masses; slightly alkaline.

Type Location

Kenedy County, Texas; from the intersection of U.S. Highway 77 and Texas Highway 285 in Rivera, 10.5 miles south on U.S. Highway 77, 12.5 miles east-northeast on ranch road, 7.4 miles southeast on ranch road, 2,300 feet southwest on ranch road, 3.4 miles southeast on ranch road, and 100 feet west in range. Potrero Cortado, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 5 minutes, 0.00 seconds North; Longitude: 97 degrees, 29 minutes, 37.00 seconds West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is 4 to 12 inches from the surface. These soils remain dry in some parts of the moisture control section for 90 or more cumulative days in normal years. The driest periods occur in late winter to early spring and during mid-summer.

Mean annual soil temperature: 72 to 76 degrees F

EC (dS/m): 4 to 20 (increases with depth)

Particle-size control section (weighted average):

Clay content: 25 to 35 percent

CEC/clay ratio: 0.40 to 0.60

Other features: Buried A and B horizons are present in some pedons below depths of 20 inches; salic horizons occur in some pedons below depths of 40 inches

A horizon

Hue: 10YR to N/

Value: 3 to 5

Chroma: 0 to 2

Texture: Fine sandy loam or sandy clay loam

SAR: 0 to 5

Effervescence: None to violent

Reaction: Slightly alkaline or moderately alkaline

Bz horizon

Hue: 10YR to 5Y

Value: 4 to 6

Chroma: 1 or 2

Texture: Fine sandy loam, loam, sandy clay loam, or clay loam

SAR: 5 to 20

Identifiable secondary carbonate: Amount—none or few; size—fine or medium

Effervescence: Slightly or strongly

Reaction: Slightly alkaline to strongly alkaline

BCz horizon

Hue: 10YR to 5Y

Value: 6 to 8

Chroma: 1 or 2

Texture: Fine sandy loam, sandy clay loam, or clay loam

SAR: 5 to 20

Identifiable secondary carbonate: Amount—none to common; size—fine or medium

Effervescence: Slight to violent

Reaction: Slightly alkaline to strongly alkaline

Lopeno Series

The Lopeno series consists of very deep, moderately well drained, rapidly permeable soils on convex mounds or dunes in deflation flats of active or recently active dune complexes. These nearly level to very gently sloping soils formed in sandy eolian sediments of Holocene age overlying loamy eolian deposits of Quaternary age. Slope ranges from 1 to 5 percent. Mean annual air temperature is about 73 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Mixed, hyperthermic OxyAquic Ustipsamments

Typical Pedon

Lopeno fine sand, on a southeast facing, 2 percent slope in an area of Potrero-Lopeno-Noria complex, 0 to 5 percent slopes, in rangeland at an elevation of 11 feet. (Colors are for moist soil unless otherwise stated.) (fig. 43)

- A—0 to 5 inches; brown (10YR 5/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose; 7 percent fine and medium roots; 2 percent fine distinct brownish yellow (10YR 6/6) masses of oxidized iron; slightly acid; clear smooth boundary.
- C1—5 to 19 inches; pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; many fine and medium roots; common fine pores; 3 percent fine distinct brownish yellow (10YR 6/6) masses of oxidized iron; faint thin bedding planes; slightly acid; gradual smooth boundary.
- C2—19 to 41 inches; pale brown (10YR 6/3) fine sand; loose; common fine and medium roots; common fine pores; 7 percent fine distinct yellowish brown (10YR 5/6) masses of oxidized iron; 4 percent medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; faint thin bedding planes; moderately alkaline; clear smooth boundary.
- Cg1—41 to 54 inches; light brownish gray (10YR 6/2) fine sand; single grain; loose; common fine roots; common fine pores; 5 percent fine distinct brownish yellow (10YR 6/6) masses of oxidized iron; 2 percent medium distinct brownish yellow (10YR 6/6) masses of oxidized iron; faint thin bedding planes; slightly alkaline; gradual smooth boundary.
- Cg2—54 to 65 inches; light brownish gray (2.5Y 6/2) fine sand; single grain; loose; common fine roots; common fine pores; 2 percent fine distinct brownish yellow (10YR 6/6) masses of oxidized iron; faint thin bedding planes; slightly alkaline; abrupt smooth boundary.
- Agb—65 to 69 inches; grayish brown (2.5Y 5/2) fine sand; single grain; loose; common fine roots; common fine pores; 25 percent medium distinct dark grayish brown (10YR 4/2) masses of oxidized iron; 5 percent fine distinct light olive brown (2.5Y 5/4) masses of oxidized iron; 3 percent fine and medium distinct dark greenish gray (10Y 4/1) masses of oxidized iron; slightly alkaline; clear smooth boundary.
- Bgb1—69 to 74 inches; grayish brown (2.5Y 5/2) loamy fine sand; weak fine and medium subangular blocky structure; slightly hard, friable; common fine roots; common fine pores; 25 percent medium and coarse distinct light brownish gray (2.5Y 6/2) masses of oxidized iron; 7 percent fine and medium distinct light

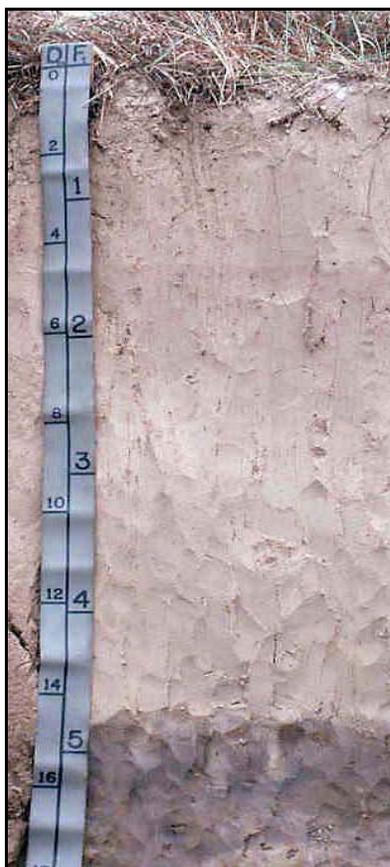


Figure 43.—Profile of Lopeno fine sand, in an area of Potrero-Lopeno-Noria complex, 0 to 5 percent slopes. Lopeno soils contain buried surface and subsoil horizons at depth below 5 feet. (Scale in D-decimeters, and FT-feet)

yellowish brown (2.5Y 6/4) masses of oxidized iron; 5 percent fine and medium distinct dark greenish gray (10Y 3/1) masses of oxidized iron; 3 percent fine and medium prominent olive brown (2.5Y 4/4) masses of oxidized iron; neutral; clear smooth boundary.

Bgb2—74 to 80 inches; light olive gray (5Y 6/2) fine sand; weak fine and medium subangular blocky structure; slightly hard, very friable; common fine roots; common fine pores; 7 percent fine and medium faint light yellowish brown (2.5Y 6/3) masses of oxidized iron; 7 percent fine and medium distinct light yellowish brown (2.5Y 6/4) masses of oxidized iron; 5 percent medium distinct greenish gray (10GY 5/1) masses of oxidized iron; 3 percent fine and medium distinct grayish green (5G 5/2) masses of oxidized iron; slightly alkaline.

Type Location

Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Avenue in Sarita, 4.8 miles south on U.S. Highway 77, 19.6 miles east on ranch road, 1.25 miles south on ranch road, and 3,200 feet south in rangeland. Yarborough Pass, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 10 minutes, 23.40 seconds, North; Longitude: 97 degrees, 29 minutes, 45.30 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90, but less than 150 cumulative days in normal

years. The soil moisture control section is also either moist in some or all parts for 180 cumulative days or more, or moist for 90 or more consecutive days in normal years. A water table occurs in most pedons at a depth of 36 to 60 inches for at least two months in most years. November through April are the driest months, with a second dry period in July. September is the wettest month.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 0 to 20 inches

Depth to iron depletions or depleted matrix: 42 to 75 inches

Depth to endosaturation: 36 to 60 inches for at least two months in most years

Depth to lithologic discontinuity: 34 to 54 inches

A horizon

Hue: 10YR

Value: 4 to 6

Chroma: 2 to 4

Texture: Fine sand

Redox concentrations: Amount—0 to 3 percent; size—fine; contrast—distinct; boundary—clear or sharp; location—lining pores; shades—brown or yellow

EC (dS/m): 0 to 2

SAR: 0 to 5

Reaction: Moderately acid to neutral

C horizon

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 2 or 3

Texture: Fine sand

Redox concentrations: Amount—4 to 12 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or sharp; location—lining pores; shades—brown or yellow

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Slightly acid to moderately alkaline

Ab or Agb horizon

Hue: 10YR or 2.5Y

Value: 3 to 5

Chroma: 1 to 3

Texture: Fine sand, loamy fine sand, or fine sandy loam

Redox concentrations: Amount—0 to 25 percent; size—fine to coarse; contrast—faint or distinct; boundary—diffuse to sharp; location—lining pores; shades—brown or yellow

Redox depletions: Amount—0 to 7 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; location—in the matrix; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Slightly acid to moderately alkaline

Bgb horizon

Hue: 10YR to 5Y

Value: 4 to 6

Chroma: 1 or 2

Texture: Loamy fine sand, fine sandy loam, or sandy clay loam

Redox concentrations: Amount—10 to 25 percent; size—fine to coarse; contrast—faint to prominent; boundary—diffuse to sharp; location—lining pores; shades—brown or yellow

Redox depletions: Amount—2 to 20 percent; size—fine to coarse; contrast—faint or distinct; boundary—diffuse or clear; location—in the matrix; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Slightly acid to slightly alkaline

Madre Series

The Madre series consists of very deep, poorly drained, very slowly permeable soils that formed in sandy eolian and storm washover sediments on barrier islands. These nearly level soils are on planar to concave barrier flats. These soils are subject to occasional flooding by high storm surge from strong tropical storms, and are ponded after periods of heavy rainfall. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Siliceous, hyperthermic Sodic Psammaquents

Typical Pedon

Madre fine sand, in area of Madre-Malaquite complex on a slightly concave, 0 to 1 percent slope in rangeland at an elevation of 3 feet. (Colors are for moist soil unless otherwise stated.)

An1—0 to 4 inches; grayish brown (10YR 5/2) fine sand, light brownish gray (10YR 6/2) dry; weak fine and medium subangular blocky structure parting to single grain; soft, very friable; 6 percent very fine and fine roots; 3 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron with clear boundaries lining pores; very slightly saline; slightly alkaline; gradual smooth boundary.

An2—4 to 11 inches; grayish brown (10YR 5/2) fine sand, light brownish gray (10YR 6/2) dry; weak fine and medium subangular blocky structure parting to single grain; soft, very friable; 4 percent very fine and fine roots; 6 percent fine and medium distinct brownish yellow (10YR 6/6) masses of oxidized iron with clear boundaries lining pores; 1-inch thick strata of grayish brown (10YR 5/2) and very dark grayish brown (10YR 3/2) at lower boundary; very slightly saline; moderately alkaline; clear smooth boundary.

Cng1—11 to 22 inches; light brownish gray (10YR 6/2) fine sand, light gray (10YR 7/2) dry; weak medium subangular blocky structure parting to single grain; loose; 4 percent very fine and fine roots and 1 percent roots; 4 percent fine and medium distinct brownish yellow (10YR 6/6) and olive yellow (2.5Y 6/6) masses of oxidized iron with clear boundaries lining pores; very slightly saline; abrupt smooth boundary.

Cng2—22 to 28 inches; grayish brown (2.5Y 5/2) fine sand, light brownish gray (2.5Y 6/2) dry; single grain; loose; 3 percent very fine and fine roots; 5 percent medium faint gray (10YR 5/1) iron depletions with diffuse boundaries in matrix; very slightly saline; neutral; clear smooth boundary.

Cng3—28 to 41 inches; light brownish gray (2.5Y 6/2) fine sand, light gray (2.5Y 7/2) dry; single grain; loose; 3 percent very fine and fine roots and 1 percent medium roots; 2 percent fine faint light olive brown (2.5Y 5/3) masses of oxidized iron with clear boundaries lining pores; 5 percent medium and coarse distinct gray (2.5Y

5/1) iron depletions with clear boundaries in matrix; very slightly saline; neutral; abrupt smooth boundary.

Anb—41 to 46 inches; dark gray (10YR 4/1) fine sand, grayish brown (10YR 5/2) dry; single grain; loose; 2 percent very fine and fine roots; 5 percent medium and coarse faint gray (2.5Y 5/1) iron depletions with diffuse boundaries in matrix; very slightly saline; neutral; clear smooth boundary.

Cngb1—46 to 53 inches; dark grayish brown (2.5Y 4/2) fine sand, grayish brown (2.5Y 5/2) dry; single grain; loose; 1 percent very fine and fine roots; 5 percent medium and coarse faint dark gray (2.5Y 4/1) and 5 percent medium distinct light brownish gray (10YR 6/2) iron depletions with diffuse boundaries in matrix; very slightly saline; neutral; clear smooth boundary.

Cngb2—53 to 80 inches; grayish brown (2.5Y 5/2) fine sand, light brownish gray (2.5Y 6/2) dry; single grain; loose; 1 percent very fine and fine roots; 5 percent medium and coarse faint light brownish gray (10YR 6/2) iron depletions with diffuse boundaries in matrix; very slightly saline; neutral.

Type Location

Kleberg County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties, 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore, 0.8 mile southwest on Park Road 22 to the intersection of Novillo and Bird Island Basin Road, 0.42 mile west-northwest on Bird Island Basin Road, and 150 feet northeast in rangeland. South Bird Island, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 28 minutes, 00.4 seconds, North; Longitude: 97 degrees, 17 minutes, 48.4 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. Although rainfall amounts are that of an Ustic soil moisture regime, the soil has a permanent water table at depths of 10 to 30 inches throughout the year in most years. The soil is rarely, if ever, at the wilting point below 10 inches, and it is saturated or ponded for periods of several days or weeks following heavy rains.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 0 to 10 inches

Depth to iron depletions: 5 to 18 inches

Depth to endosaturation: 10 to 30 inches throughout the year in most years

Particle-size control section (weighted average):

Clay content: 0 to 5 percent

Sand content: 95 to 99 percent

Other features: The particle-size control section has less than 5 percent silt plus clay.

An horizon

Hue: 10YR

Value: 4 to 6

Chroma: 2 or 3

Texture: Fine sand

Clay content: 0 to 5 percent

Redox concentrations: Amount—1 to 12 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown or yellow

Iron depletions: Amount—0 to 2 percent; size—fine or medium; contrast—faint; boundary—diffuse or clear; shades—gray

EC (dS/m): 0 to 4

SAR: 5 to 20

Reaction: Neutral to strongly alkaline

Cng horizon

Hue: 10YR, 2.5Y, 5Y, or N/

Value: 4 to 6

Chroma: 0 to 2

Texture: Fine sand

Clay content: 0 to 5 percent

Redox concentrations: Amount—2 to 20 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown or yellow

Iron depletions: Amount—1 to 15 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray

EC (dS/m): 2 to 8

SAR: 13 to 40

Reaction: Neutral to strongly alkaline

Anb horizon

Hue: 10YR, 2.5Y, 5GY, or 5B

Value: 3 or 4

Chroma: 1

Texture: Fine sand

Clay content: 0 to 5 percent

Redox concentrations: Amount—0 to 10 percent; size—fine to coarse; contrast—faint to prominent; boundary—clear or sharp; shades—brown or yellow

Iron depletions: Amount—1 to 5 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray

EC (dS/m): 2 to 8

SAR: 13 to 40

Reaction: Neutral to strongly alkaline

Cngb horizon

Hue: 10YR, 2.5Y, 5Y, or 5GY

Value: 4 or 5

Chroma: 1 or 2

Texture: Fine sand

Clay content: 0 to 5 percent

Redox concentrations: Amount—0 to 10 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or sharp; shades—brown or yellow

Iron depletions: Amount—2 to 20 percent; size—fine to coarse; contrast—faint or distinct; boundary—diffuse or clear; shades—gray

EC (dS/m): 2 to 8

SAR: 13 to 40

Reaction: Neutral to strongly alkaline

Malaquite Series

The Malaquite series consists of very deep, poorly drained, very slowly permeable soils that formed in sandy eolian and storm washover sediments on barrier islands. These nearly level soils are on planar to concave barrier flats. These soils are subject to occasional flooding by high storm surge from strong tropical storms, and are ponded after periods of heavy rainfall. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Sandy, siliceous, hyperthermic Typic Halaquepts

Typical Pedon

Malaquite fine sand, in an area of Madre-Malaquite complex on a slightly concave 0 to 1 percent slope in rangeland at an elevation of 2 feet. (Colors are for moist soil unless otherwise stated.) (fig. 44)

- Anz—0 to 5 inches; grayish brown (10YR 5/2) fine sand, light gray (10YR 7/2) dry; weak fine and medium subangular blocky structure; soft, very friable; 5 percent very fine and fine and 3 percent medium roots; 5 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron with sharp boundaries lining pores; 1 percent fine shell fragments; strongly saline; slightly effervescent; moderately alkaline; clear smooth boundary.
- Cnzg1—5 to 12 inches; light brownish gray (10YR 6/2) fine sand, light gray (2.5Y 7/2) dry; weak fine and medium subangular blocky structure; soft, very friable; 4 percent very fine and fine roots; 1 percent fine and medium prominent black (N 2.5/) iron-manganese masses with sharp boundaries lining pores and 1 percent medium and coarse faint gray (10YR 5/1) iron depletions with clear boundaries in matrix; 3 percent fine prominent strong brown (7.5YR 4/6) and 7 percent fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron with sharp boundaries lining pores; 1 percent fine shell fragments; moderately saline; very slightly effervescent; strongly alkaline; clear smooth boundary.
- Cnzg2—12 to 21 inches; light brownish gray (2.5Y 6/2) fine sand, light gray (10YR 7/2) dry; weak coarse prismatic structure; loose; 3 percent very fine and fine roots; 4 percent fine and medium distinct black (N 2.5/) iron-manganese masses with sharp boundaries lining pores; 1 percent fine prominent yellowish red (5YR 4/6) masses of oxidized iron and 2 percent medium prominent brownish yellow (10YR 6/6) masses of oxidized iron with sharp boundaries lining pores; 5 percent medium distinct gray (10YR 5/1) iron depletions with clear boundaries in matrix; 2 percent fine shell fragments; strongly saline; noneffervescent; strongly alkaline; clear smooth boundary.
- Anzb—21 to 27 inches; very dark gray (2.5Y 3/1) fine sand, grayish brown (2.5Y 5/2) dry; single grain; loose; 2 percent very fine and fine roots; 3 percent medium distinct dark gray (2.5Y 4/1) iron depletions with clear boundaries in matrix; 1 percent fine shell fragments; strongly saline; very slightly effervescent; moderately alkaline; clear smooth boundary.
- Cnrgb1—27 to 38 inches; gray (10YR 5/1) fine sand, light brownish gray (10YR 6/2) dry; single grain; loose; 1 percent very fine and fine roots; 2 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron with sharp boundaries lining pores; 2 percent fine and medium distinct light brownish gray (10YR 6/2) iron depletions with diffuse boundaries in matrix; 10 percent fine and medium shell fragments; strongly saline; very slightly effervescent; moderately alkaline; clear smooth boundary.
- Cnrgb2—38 to 69 inches; gray (2.5Y 6/1) fine sand, light gray (2.5Y 7/1) dry; single grain; loose; 1 percent very fine and fine roots; 5 percent medium faint gray (2.5Y 5/1) iron depletions with diffuse boundaries in matrix; strongly saline; strongly effervescent; moderately alkaline; clear smooth boundary.
- Cnrgb3—69 to 80 inches; greenish gray (10Y 6/1) fine sand, light gray (2.5Y 7/1) dry; single grain; loose; 1 percent very fine and fine roots; 3 percent medium distinct dark greenish gray (5GY 4/1) and 3 percent medium prominent dark gray (5Y 4/1) iron depletions with clear boundaries in matrix and 5 percent medium faint greenish gray (5GY 5/1) iron depletions with diffuse boundaries in matrix; 2



Figure 44.—Profile of Malaquite fine sand in an area of Madre-Malaquite complex, 0 to 1 percent slopes, occasionally flooded. This soil has high amounts of sodium, high levels of salinity, and a seasonally high water table. (Scale in CM-centimeters, and FT-feet)

percent fine and medium shell fragments; strongly saline; slightly effervescent; moderately alkaline; clear smooth boundary.

Type Location

Kleberg County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties, 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore, 2.4 miles southwest on Park Road 22 to the end of the paved road, 7.0 miles south on beach to the entrance of Pan Am Road, 0.2 mile northwest, 3.2 miles southwest on Pan Am Road, and 200 feet west in rangeland. South Bird Island Southeast, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 17 minutes, 27.0 seconds, North; Longitude: 97 degrees, 21 minutes, 43.7 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. Although rainfall amounts are that of an Ustic soil moisture regime, the soil has a permanent water table at depths of 10 to 30 inches throughout the year in most years. The soil is rarely, if ever, at the

wilting point below 10 inches and it is saturated or ponded for periods of several days or weeks following heavy rains.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 0 to 10 inches

Depth to iron depletions: 6 to 24 inches

Depth to endosaturation: 10 to 30 inches throughout the year in most years

Particle-size control section (weighted average):

Clay content: 0 to 7 percent

Sand content: 93 to 99 percent

Anz horizon

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 2 or 3

Texture: Fine sand

Redox concentrations: Amount—1 to 10 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown or yellow

Iron depletions: Amount—0 to 2 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray in the lower part

EC (dS/m): 8 to 45

SAR: 30 to 50

Reaction: Neutral to strongly alkaline

Cnzg horizon

Hue: 10YR, 2.5Y, 5Y, or N/

Value: 4 to 7

Chroma: 0 to 2 or 6

Texture: Fine sand

Redox concentrations: Amount—2 to 20 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown, olive, red, or yellow

Iron depletions: Amount—1 to 15 percent; size—fine to coarse; contrast—faint to prominent; boundary—diffuse or clear; shades—gray

EC (dS/m): 8 to 75

SAR: 25 to 70

Reaction: Neutral to strongly alkaline

Anzb horizon

Hue: 10YR, 2.5Y, 5Y, 5GY, or N/

Value: 3 or 4

Chroma: 0 or 1

Texture: Fine sand

Redox concentrations: Amount—0 to 2 percent; size—fine or medium; contrast—faint or distinct; boundary—clear; shades—brown

Iron depletions: Amount—0 to 5 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray

EC (dS/m): 20 to 75

SAR: 25 to 70

Reaction: Neutral to strongly alkaline

Cnzgb horizon

Hue: 10YR, 2.5Y, 5Y, 10Y, 5GY, 5G, or N/

Value: 4 to 7

Chroma: 0 or 1, or 4

Texture: Fine sand

Redox concentrations: Amount—0 to 5 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or sharp; shades—brown or yellow

Iron depletions: Amount—0 to 15 percent; size—fine or medium; contrast—faint to prominent; boundary—diffuse or clear; shades—gray or green

EC (dS/m): 20 to 75

SAR: 25 to 70

Reaction: Neutral to strongly alkaline

Medanito Series

The Medanito series consists of very deep, well drained, rapidly permeable over moderately rapid permeable soils. These soils formed in recent sandy eolian deposits over loamy Quaternary alluvium on the Sand Sheet Prairie of the South Texas Coastal Plain. Slope ranges from 0 to 5 percent. Mean annual air temperature is about 73 degrees F, and mean annual precipitation is about 26 inches.

Taxonomic Class

Mixed, hyperthermic Typic Ustipsamments

Typical Pedon

Medanito fine sand—on a northeast facing, slightly concave 1 percent slope in a complex with the Falfurrias and Atiras series in rangeland at an elevation of 29 feet. (Colors are for dry soil unless otherwise stated.) (fig. 45)

A1—0 to 9 inches; dark grayish brown (10YR 4/2) fine sand, grayish brown (10YR 5/2) dry; single grain; loose; 6 percent very fine and fine roots; slightly acid; clear smooth boundary.

A2—9 to 26 inches; dark grayish brown (10YR 4/2) fine sand, grayish brown (10YR 5/2) dry; single grain; loose; 6 percent very fine and fine, and 1 percent medium and coarse roots; 10 percent krotovinas; 4 percent fine and medium distinct dark yellowish brown (10YR 4/6) masses of oxidized iron; slightly acid; clear smooth boundary.

C—26 to 32 inches; brown (10YR 5/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose; 6 percent very fine and fine, and 2 percent medium and coarse roots; thin bedding planes; 3 percent fine distinct yellowish brown (10YR 5/6) masses of oxidized iron; moderately acid; very abrupt smooth boundary.

2Ab—32 to 36 inches; very dark grayish brown (10YR 3/2) loamy fine sand, dark grayish brown (10YR 4/2) dry; weak coarse prismatic structure parting to weak fine and medium subangular blocky; slightly hard, very friable; 3 percent very fine and fine, and 2 percent medium roots; 2 percent very fine and fine roots along prism faces; upper 2 cm of horizon is a very dark brown (10YR 2/2) band; 2 percent fine distinct strong brown (7.5YR 5/6) masses of oxidized iron; slightly acid; clear smooth boundary.

2Bnb1—36 to 42 inches; dark grayish brown (10YR 4/2) loamy fine sand, grayish brown (10YR 5/2) dry; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; hard, friable; 3 percent very fine and fine roots; 2 percent very fine and fine roots along prism faces; 4 percent fine distinct strong brown (7.5YR 5/6) masses of oxidized iron along root channels; slightly alkaline; gradual smooth boundary.

2Bnb2—42 to 51 inches; light brownish gray (10YR 6/2) fine sandy loam, pale brown (10YR 6/3) dry; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; hard, friable; 2 percent very fine and fine roots; 2 percent very fine and fine roots along prism faces; 4 percent fine distinct strong brown (7.5YR 5/6) masses of oxidized iron; moderately alkaline; gradual smooth boundary.



Figure 45.—Profile of Medanito fine sand, in an area of Falfurrias-Atiras-Medanito complex, 0 to 5 percent slopes. A buried A horizon or surface layer is at a depth of 2.5 to 3 feet. (Scale in CM-centimeters, and FT-feet)

- 2Bnb3—51 to 59 inches; light yellowish brown (2.5Y 6/3) sandy clay loam, pale yellow (2.5Y 7/3) dry; weak medium and coarse subangular blocky structure; hard, friable; 2 percent very fine and fine roots; 1 percent very fine and fine roots along prism faces; 3 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; moderately alkaline; clear smooth boundary.
- 3BCn1—59 to 73 inches; light yellowish brown (2.5Y 6/3) fine sandy loam, pale yellow (2.5Y 7/3) dry; weak coarse subangular blocky structure; hard, friable; 1 percent very fine and fine roots; 1 percent very fine and fine roots along faces of peds; 2 percent coarse distinct dark yellowish brown (10YR 4/6) masses of oxidized iron; moderately alkaline; gradual smooth boundary.
- 3BCn2—73 to 80 inches; light yellowish brown (2.5Y 6/3) loamy fine sand, pale yellow (2.5Y 7/3) dry; weak coarse subangular blocky structure; slightly hard, friable; 1 percent very fine and fine roots; 1 percent very fine and fine roots along faces of peds; 3 percent fine and medium distinct light olive brown (2.5Y 5/6) masses of oxidized iron; moderately alkaline.

Type Location

Kenedy County, Texas; from the intersection of La Parra Avenue and U.S. Highway 77 in Sarita, 4.8 miles south on U.S. Highway 77, 2.13 miles east on ranch road, 0.77 mile north on ranch road, 500 feet northwest to pipeline right-of-way, 1,300 feet southwest along pipeline right-of-way, and 300 feet west northwest in rangeland. Sarita, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 09 minutes, 46.3 seconds, North; Longitude: 97 degrees, 45 minutes, 46.48 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90, but less than 150 cumulative days in normal years. The soil moisture control section is also either moist in some or all parts for 180 cumulative days or more, or moist for 90 or more consecutive days in normal years. November through April are the driest months, with a second low in July, while September is the wettest.

Depth to redox concentrations: 7 to 20 inches

Depth to buried soil: 20 to 40 inches

Particle-size control section (weighted average):

Clay content: 1 to 7 percent

A horizon

Hue: 10YR

Value: 4 to 6

Chroma: 2 or 3

Texture: Fine sand or loamy fine sand

Clay content: 1 to 7 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—distinct or prominent; shades—brown

EC (dS/m): 0.1 to 0.5

SAR: 0 to 5

Reaction: Moderately acid or slightly acid

C horizon

Hue: 10YR

Value: 6 or 7

Chroma: 2 or 3

Texture: Fine sand or loamy fine sand

Clay content: 1 to 6 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—distinct or prominent; boundary—clear or distinct; shades—brown

EC (dS/m): 0.1 to 1

SAR: 0 to 6

Reaction: Moderately acid to neutral

2Ab horizon

Hue: 10YR

Value: 2 to 5

Chroma: 1 to 3

Texture: Loamy fine sand or fine sandy loam

Clay content: 10 to 14 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—faint to prominent; boundary—clear or distinct; shades—brown

EC (dS/m): 0 to 2

SAR: 2 to 10

Reaction: Moderately acid or slightly acid

2Bnb1 horizon

Hue: 10YR

Value: 5 to 7

Chroma: 2 to 4

Texture: Loamy fine sand, fine sandy loam, or sandy clay loam

Clay content: 10 to 25 percent

Redox concentrations: Amount—none to many; size—fine or medium; contrast—distinct or prominent; boundary—clear or distinct; shades—brown
EC (dS/m): 0 to 2
SAR: 6 to 13
Reaction: Slightly acid to slightly alkaline

Lower 2Bnb horizon

Hue: 10YR or 2.5Y
Value: 6 to 8
Chroma: 2 to 4
Texture: Loamy fine sand, fine sandy loam, or sandy clay loam
Clay content: 10 to 25 percent
Redox concentrations: Amount—none to many; size—fine or medium; contrast—distinct or prominent; boundary—clear or distinct; shades—brown
EC (dS/m): 0 to 4
SAR: 9 to 20
Reaction: Neutral to moderately alkaline

3BCn horizon

Hue: 10YR or 2.5Y
Value: 6 to 8
Chroma: 2 to 4
Texture: loamy fine sand or fine sandy loam
Clay content: 10 to 14 percent
Redox concentrations: Amount—none to many; size—fine or medium; contrast—distinct or prominent; boundary—clear or distinct; shades—brown
Base saturation: 70 to 100 percent
EC (dS/m): 0 to 4
SAR: 9 to 20
Reaction: Neutral to moderately alkaline

Montealto Series

The Montealto series consists of very deep, poorly drained, very slowly permeable soils in depressions on the Lower Rio Grande Plains. These nearly level soils are in depressions. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Fine, mixed, active, hyperthermic Ustic Epiaquerts

Typical Pedon

Montealto clay—on a concave, 0 to 1 percent slope in a depression in rangeland at an elevation of 16 feet. (Colors are for dry soil unless otherwise stated.)

A1—0 to 5 inches; black (10YR 2/1) clay, very dark gray (10YR 3/1) dry; moderate fine and medium angular blocky structure; extremely hard, very firm, very sticky, very plastic; 7 percent fine and medium roots; 5 percent very fine and fine tubular pores; 7 percent fine prominent yellowish brown (10YR 5/6) masses of oxidized iron with sharp boundaries lining pores; 3 percent fine and medium faint dark gray (10YR 4/1) iron depletions with diffuse boundaries in the matrix; slightly acid; clear smooth boundary.

A2—5 to 17 inches; black (10YR 2/1) clay, very dark gray (10YR 3/1) dry; moderate fine and medium angular blocky structure; extremely hard, very firm, very sticky, very

- plastic; 5 percent very fine and fine roots; 3 percent very fine and fine pores; 2 percent fine distinct dark yellowish brown (10YR 4/4) masses of oxidized iron with sharp boundaries lining pores; 3 percent fine prominent dark gray (10YR 4/1) and 2 percent fine and medium faint light brownish gray (10YR 6/2) iron depletions with clear boundaries in the matrix; slightly acid; clear smooth boundary.
- Bss**—17 to 28 inches; very dark gray (10YR 3/1) clay, dark gray (10YR 4/1) dry; moderate fine and medium angular blocky structure; extremely hard, very firm, very sticky, very plastic; 3 percent very fine and fine roots; 3 percent very fine and fine pores; 8 percent faint slickensides; 2 percent fine distinct dark yellowish brown (10YR 4/4) masses of oxidized iron with sharp boundaries lining pores; 3 percent fine and medium faint gray (10YR 5/1) iron depletions with diffuse boundaries in the matrix; neutral; clear smooth boundary
- Bkss1**—28 to 37 inches; dark gray (10YR 4/1) clay, gray (10YR 5/1) dry; moderate fine and medium angular blocky structure; extremely hard, very firm, very sticky, very plastic; 2 percent very fine and fine roots; 3 percent very fine and fine pores; 20 percent distinct slickensides; 2 percent fine iron-manganese nodules; 1 percent fine prominent light yellowish brown (2.5Y 6/4) masses of oxidized iron with sharp boundaries lining pores; 3 percent fine and medium distinct grayish brown (10YR 5/2) and 5 percent medium faint very dark gray (10YR 3/1) iron depletions with clear boundaries in the matrix; 2 percent fine and medium weakly cemented nodules of calcium carbonate; noneffervescent; moderately alkaline; clear smooth boundary.
- Bkss2**—37 to 46 inches; dark gray (10YR 4/1) clay, gray (10YR 5/1) dry; moderate fine and medium angular blocky structure; extremely hard, very firm, very sticky, very plastic; 1 percent very fine and fine roots; 1 percent very fine and fine pores; 25 percent distinct slickensides; 2 percent fine iron-manganese concretions; 5 percent fine and medium faint very dark gray (10YR 3/1) and 7 percent medium distinct grayish brown (2.5Y 5/2) iron depletions with clear boundaries in the matrix; 2 percent fine weakly cemented nodules of calcium carbonate; noneffervescent; strongly alkaline; clear smooth boundary.
- Bkss3**—46 to 59 inches; grayish brown (2.5Y 5/2) clay, light brownish gray (2.5Y 6/2) dry; moderate fine and medium angular blocky structure; extremely hard, very firm, very sticky, very plastic; 1 percent very fine and fine roots; 1 percent very fine and fine pores; 20 percent distinct slickensides; 3 percent fine iron-manganese concretions; 5 percent medium faint light yellowish brown (2.5Y 6/3) masses of oxidized iron with clear boundaries lining pores; 3 percent fine and medium distinct very dark gray (10YR 3/1) iron depletions with clear boundaries in the matrix; 2 percent fine weakly cemented nodules of calcium carbonate; noneffervescent; moderately alkaline; clear smooth boundary.
- BC1**—59 to 71 inches; grayish brown (2.5Y 5/2) clay, light brownish gray (2.5Y 6/2) dry; weak fine and medium angular blocky structure; extremely hard, very firm, very sticky, very plastic; 3 percent fine iron-manganese concretions; 7 percent medium faint light yellowish brown (2.5Y 6/3) masses of oxidized iron with clear boundaries in the matrix; 2 percent fine and medium distinct dark gray (10YR 4/1) iron depletions with clear boundaries in the matrix; 1 percent medium masses of calcium carbonate; noneffervescent; moderately alkaline; clear smooth boundary.
- BC2**—71 to 80 inches; grayish brown (2.5Y 5/2) clay, light brownish gray (2.5Y 6/2) dry; weak fine and medium angular blocky structure; extremely hard, very firm, very sticky, very plastic; 3 percent fine and medium iron-manganese concretions; 10 percent medium faint pale yellow (2.5Y 7/3), 3 percent medium faint pale olive (5Y 6/3), and 2 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron with clear boundaries in the matrix; 3 percent medium distinct grayish brown (10YR 5/2) iron depletions with clear boundaries in the matrix; 1 percent medium masses of calcium carbonate; noneffervescent; moderately alkaline.

Type Location

Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Avenue in Sarita, 38.65 miles south on U.S. Highway 77, 1.9 miles east on ranch road, 800 feet south on ranch road, 0.67 mile generally east on ranch road, and 400 feet southeast in depression. Rosita Lake, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 39 minutes, 37.2 seconds, North; Longitude: 97 degrees, 43 minutes, 34.2 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime.

Mean annual soil temperature: 72 to 74 degrees F

Depth to secondary calcium carbonate: 24 to 40 inches

Depth to redox concentrations: 0 to 20 inches

Depth to iron depletions: 0 to 40 inches

Depth to episaturation: 0 to 24 inches in most years from September to April. The soil is ponded to a depth of 12 inches for short periods after heavy precipitation events.

Vertic features: 15 to 60 inches

Particle-size control section (weighted average):

Clay content: 40 to 55 percent

A horizon

Hue: 10YR

Value: 3 to 5, 2 to 4 moist

Chroma: 1

Texture: Clay loam or clay

Clay content: 35 to 55 percent

Redox concentrations: Amount—0 to 7 percent; size—fine; contrast—distinct or prominent; boundary—sharp or clear; shades—brown

Redox depletions: Amount—0 to 3 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or diffuse; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 4

Effervescence: None

Reaction: Moderately acid to neutral

Bss horizon

Hue: 10YR or 2.5Y

Value: 4 to 6, 3 to 5 moist

Chroma: 1 or 2

Texture: Clay

Clay content: 40 to 60 percent

Redox concentrations: Amount—1 to 10 percent; size—fine or medium; contrast—faint to prominent; boundary—sharp or clear; shades—brown

Redox depletions: Amount—0 to 7 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or diffuse; shades—gray

EC (dS/m): 0 to 4

SAR: 0 to 8

Effervescence: None

Reaction: Neutral to strongly alkaline

Bkss horizon

Hue: 10YR or 2.5Y

Value: 4 to 6, 3 to 5 moist

Chroma: 1 or 2

Texture: Clay

Clay content: 40 to 60 percent

Redox concentrations: Amount—1 to 10 percent; size—fine or medium; contrast—faint to prominent; boundary—sharp or clear; shades—brown

Redox depletions: Amount—0 to 12 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or diffuse; shades—gray

Identifiable secondary carbonate: Amount—0 to 2 percent; size—fine or medium; location—throughout

EC (dS/m): 0 to 4

SAR: 0 to 8

Effervescence: None

Reaction: Neutral to strongly alkaline

BC horizon

Hue: 10YR or 2.5Y

Value: 5 to 7, 4 to 6 moist

Chroma: 2

Texture: Clay loam, sandy clay, or clay

Clay content: 30 to 60 percent

Redox concentrations: Amount—1 to 12 percent; size—fine or medium; contrast—faint to prominent; boundary—sharp or clear; shades—brown

Redox depletions: Amount—0 to 12 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or diffuse; shades—gray

EC (dS/m): 0 to 4

SAR: 0 to 8

Effervescence: None to slight

Reaction: Slightly alkaline to strongly alkaline

Mustang Series

The Mustang series consists of very deep, poorly drained, very slowly permeable soils that formed in sandy eolian and storm washover sediments on barrier flats. These nearly level soils are on planar to concave barrier flats. These soils are subject to occasional flooding by high storm surge from strong tropical storms, and are ponded after periods of heavy rainfall. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Siliceous, hyperthermic Typic Psammaquents

Typical Pedon

Mustang fine sand, in an area of Mustang-Panam complex, 0 to 2 percent slopes on a slightly concave 0 to 1 percent slope in rangeland at an elevation of 3 feet. (Colors are for moist soil unless otherwise stated.) (fig. 46)

A1—0 to 4 inches; brown (10YR 5/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose; 5 percent very fine and fine roots and 2 percent medium roots; 1 percent fine and medium prominent olive yellow (2.5Y 6/6) masses of oxidized iron with sharp boundaries lining pores; 15 percent medium and coarse prominent gray (2.5Y 5/1) iron depletions with clear boundaries in the matrix; 1 percent fine shell fragments; non-saline; slightly effervescent; slightly alkaline; clear smooth boundary.



Figure 46.—Profile of Mustang fine sand in an area of Mustang-Panam complex, 0 to 2 percent slopes, occasionally flooded. This pedon shows evidence of reduced iron between a depth of 1 and 2 feet. The reduction of iron is because of a high seasonal water table. (Scale in CM-centimeters, and FT-feet)

- A2—4 to 11 inches; pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; 2 percent fine and medium distinct light yellowish brown (2.5Y 6/4) and 1 percent fine and medium prominent strong brown (7.5YR 5/8) masses of oxidized iron with sharp boundaries lining pores; 4 percent very fine and fine roots; 2 percent fine and medium distinct light brownish gray (2.5Y 6/2) iron depletions with diffuse boundaries in the matrix; 1 percent fine shell fragments; non-saline; very slightly effervescent; moderately alkaline; clear smooth boundary.
- Cg1—11 to 21 inches; light brownish gray (10YR 6/2) fine sand, light gray (10YR 7/2) dry; single grain; loose; 3 percent very fine and fine roots; 2 percent fine and medium prominent light yellowish brown (2.5Y 6/4) masses of oxidized iron with sharp boundaries lining pores; 7 percent medium faint grayish brown (2.5Y 5/2) and 1 percent medium and coarse distinct very dark gray (N 3/) and dark gray (N 4/) iron depletions with diffuse boundaries in matrix; 1 percent fine shell fragments; non-saline; very slightly effervescent; moderately alkaline; clear smooth boundary.
- Cg2—21 to 34 inches; grayish brown (2.5Y 5/2) fine sand, light brownish gray (2.5Y 6/2) dry; single grain; loose; 2 percent very fine and fine roots; 1 percent fine and medium distinct light yellowish brown (2.5Y 6/3) masses of oxidized iron with clear boundaries lining pores; 2 percent fine and medium faint gray (2.5Y 5/1) and 1 percent fine and medium distinct very dark gray (N 3/) iron depletions with diffuse boundaries in the matrix; 1 percent fine shell fragments; non-saline; very slightly effervescent; moderately alkaline; clear smooth boundary.
- Cg3—34 to 45 inches; light brownish gray (2.5Y 6/2) fine sand, light gray (2.5Y 7/2) dry; single grain; loose; 1 percent very fine and fine roots; 1 percent fine distinct light yellowish brown (2.5Y 6/4) masses of oxidized iron with clear boundaries lining pores; 1 percent fine shell fragments; non-saline; very slightly effervescent; moderately alkaline; clear smooth boundary.
- Cg4—45 to 57 inches; gray (5Y 5/1) fine sand, light brownish gray (2.5Y 6/2) dry; single grain; loose; 20 percent medium and coarse prominent light olive brown (2.5Y 5/6) masses of oxidized iron with sharp boundaries in the matrix; 5 percent medium distinct dark gray (N 4/) iron depletions with diffuse boundaries in the

matrix; 1 percent fine and medium shell fragments; non-saline; slightly effervescent; moderately alkaline; gradual smooth boundary.

Cg5—57 to 71 inches; gray (5Y 6/1) fine sand, light gray (2.5Y 7/2) dry; single grain; loose; 5 percent medium and coarse prominent light olive brown (2.5Y 5/6) masses of oxidized iron with clear boundaries in the matrix; 5 percent medium distinct dark gray (N 4/) iron depletions with diffuse boundaries in the matrix; 1 percent fine shell fragments; non-saline; slightly effervescent; moderately alkaline; gradual smooth boundary.

Cg6—71 to 80 inches; gray (5Y 5/1) fine sand, light brownish gray (2.5Y 6/2) dry; single grain; loose; 3 percent medium prominent olive yellow (2.5Y 6/6) masses of oxidized iron with clear boundaries in the matrix; 5 percent medium distinct dark gray (N 4/) iron depletions with diffuse boundaries in the matrix; 1 percent fine and medium shell fragments; non-saline; slightly effervescent; moderately alkaline.

Type Location

Kleberg County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties, 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore, 4.5 miles southwest on Park Road 22 to the end of the paved road, 7.0 miles south on beach to the entrance of Pan Am Road, 0.2 mile northwest and 0.6 mile south on Pan Am Road, and 120 feet west on an intermound barrier flat in rangeland. South Bird Island Southeast, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 18 minutes, 51.80 seconds, North; Longitude: 97 degrees, 20 minutes, 33.30 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. Although rainfall amounts are that of an Ustic soil moisture regime, the soil has a permanent water table at depths of 10 to 30 inches throughout the year in most years. The soil is rarely, if ever, at the wilting point below 10 inches and it is saturated or ponded for periods of several days or weeks following heavy rains. Coarse fragments of marine shells and shell fragments comprise less than 15 percent by volume.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 0 to 10 inches

Depth to iron depletions: 6 to 24 inches

Depth to endosaturation: 10 to 30 inches throughout the year in most years

Particle-size control section (weighted average):

Clay content: 0 to 5 percent

Sand content: 95 to 99 percent

Other features: The particle-size control section has less than 5 percent silt plus clay.

A horizon

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 2 or 3

Texture: Fine sand

Redox concentrations: Amount—0 to 8 percent; size—fine or medium; contrast—faint to prominent; boundary—clear to sharp; shades—brown or yellow

Redox depletions: Amount—0 to 15 percent; size—fine or medium; contrast—faint to prominent; boundary—diffuse or clear; shades—gray

EC (dS/m): 0 to 4

SAR: 0 to 10

Reaction: Neutral to strongly alkaline

C horizon (where present)

Hue: 10YR or 2.5Y

Value: 6 or 7

Chroma: 2 or 3

Texture: Fine sand

Redox concentrations: Amount—0 to 5 percent; size—fine or medium; contrast—faint to prominent; boundary—clear to sharp; shades—brown or yellow

Redox depletions: Amount—0 to 10 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray

EC (dS/m): 0 to 4

SAR: 0 to 8

Reaction: Neutral to strongly alkaline

Cg horizon

Hue: 10YR, 2.5Y, 5Y, 5GY, or N/

Value: 4 to 7

Chroma: 0 to 2

Texture: Fine sand

Redox concentrations: Amount—1 to 15 percent; size—fine or medium; contrast—faint to prominent; boundary—clear to sharp; shades—brown or yellow

Redox depletions: Amount—1 to 15 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 8

Reaction: Neutral to strongly alkaline

Narta Series

The Narta series consists of very deep, poorly drained, very slowly permeable soils that formed in loamy over clayey fluviomarine sediments derived from the Beaumont Formation of Late Pleistocene-age. These nearly level soils are on the South Texas Coastal Plain. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 33 inches.

Taxonomic Class

Fine, smectitic, hyperthermic Typic Natraqualfs

Typical Pedon

Narta loam—0.5 percent slope in rangeland; elevation is 6.5 feet. (Colors are for moist soil unless otherwise stated.)

A—0 to 5 inches; dark gray (10YR 4/1) loam; massive; friable; common fine roots and many very fine roots; common very fine and fine tubular, and common very fine interstitial pores; 1 percent wormcasts; slightly acid; clear wavy boundary.

Btn1—5 to 13 inches; very dark gray (10YR 3/1) clay loam; weak coarse columnar structure parting to moderate medium subangular blocky; firm; common fine roots and many very fine roots; common very fine tubular pores; 5 percent faint pressure faces; 5 percent faint black (10YR 2/1) clay films; 1 percent faint gray (10YR 5/1) sand coats on vertical faces of peds; 1 percent wormcasts; 1 percent fine distinct black (7.5YR 2.5/1) iron-manganese masses with sharp boundaries in matrix; slightly alkaline; gradual wavy boundary.

Btn2—13 to 21 inches; dark gray (10YR 4/1) clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; common very fine roots;

common very fine tubular pores; 5 percent faint pressure faces; 15 percent faint dark grayish brown (10YR 4/2) clay films; 1 percent wormcasts; 1 percent fine distinct black (7.5YR 2.5/1) iron-manganese masses with sharp boundaries in matrix; 1 percent medium moderately cemented very pale brown (10YR 8/2) nodules of calcium carbonate; moderately alkaline; gradual wavy boundary.

Btkn1—21 to 39 inches; gray (10YR 5/1) clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; common very fine roots; common very fine tubular pores; 1 percent faint pressure faces; 15 percent faint dark grayish brown (10YR 4/2) clay films; 1 percent fine distinct black (7.5YR 2.5/1) iron-manganese masses with sharp boundaries in matrix; 3 percent fine and medium moderately cemented very pale brown (10YR 8/2) nodules of calcium carbonate; 8 percent medium and coarse very pale brown (10YR 8/2) masses of calcium carbonate; very slightly effervescent; strongly alkaline; gradual wavy boundary.

Btkn2—39 to 49 inches; gray (10YR 6/1) clay loam; weak coarse subangular blocky structure; firm; common very fine roots; common very fine tubular pores; 10 percent faint gray (10YR 5/1) clay films; 1 percent fine distinct black (7.5YR 2.5/1) iron-manganese masses with sharp boundaries in matrix; 2 percent fine and medium moderately cemented pale yellow (2.5Y 8/2) nodules of calcium carbonate; 2 percent medium and coarse very pale brown (10YR 8/2) masses of calcium carbonate; very slightly effervescent; moderately alkaline; gradual wavy boundary.

Btkn3—49 to 57 inches; light brownish gray (2.5Y 6/2) clay loam; weak coarse subangular blocky structure; firm; few very fine roots; common very fine tubular pores; 10 percent faint gray (10YR 5/1) clay films; 1 percent fine distinct black (7.5YR 2.5/1) iron-manganese masses with sharp boundaries in matrix; 2 percent fine moderately cemented pale yellow (2.5Y 8/2) nodules of calcium carbonate; 2 percent fine and medium very pale brown (10YR 8/2) masses of calcium carbonate; slightly effervescent; moderately alkaline; gradual wavy boundary.

Btkn4—57 to 64 inches; light yellowish brown (2.5Y 6/3) and light brownish gray (2.5Y 6/2) clay loam; weak very coarse subangular blocky structure; friable; few very fine roots; common very fine tubular pores; 10 percent faint gray (10YR 5/1) clay films; 1 percent fine and medium prominent brownish yellow (10YR 6/6) masses of oxidized iron with clear boundaries on faces of peds; 2 percent medium prominent dark brown (10YR 3/3) iron-manganese masses with sharp boundaries on faces of peds; 4 percent fine and medium distinct gray (10YR 6/1) iron depletions with sharp boundaries on faces of peds; 2 percent fine moderately cemented pale yellow (2.5Y 8/2) nodules of calcium carbonate; 2 percent fine and medium very pale brown (10YR 8/2) masses of calcium carbonate; slightly effervescent; moderately alkaline; gradual wavy boundary.

Btkn5—64 to 80 inches; olive yellow (2.5Y 6/6) sandy clay loam; weak very coarse subangular blocky structure; friable; 10 percent faint gray (10YR 5/1) clay films; 2 percent fine and medium prominent brownish yellow (10YR 6/8) masses of oxidized iron with clear boundaries on faces of peds; 2 percent medium prominent dark brown (10YR 3/3) iron-manganese masses with sharp boundaries on faces of peds; 12 percent fine and medium distinct gray (10YR 6/1) iron depletions with sharp boundaries on faces of peds; 1 percent fine moderately cemented pale yellow (2.5Y 8/2) nodules of calcium carbonate; 5 percent medium and coarse very pale brown (10YR 8/2) masses of calcium carbonate; 1 percent fine salt crystals; strongly effervescent; moderately alkaline.

Type Location

Aransas County, Texas; from the Aransas National Wildlife Refuge Visitor Center; about 7.8 miles west on park road to east end of the dam on Burgentine Lake, 1 mile west on dam road, and 300 feet south in rangeland. Tivoli SE, Texas USGS

topographic quadrangle; NAD 83; Latitude: 28 degrees, 16 minutes, 41.00 seconds, North; Longitude: 96 degrees, 54 minutes, 50.70 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. These soils remain saturated with reducing conditions for long periods during the spring and late summer to early fall months.

Mean annual soil temperature: 71 to 73 degrees F

Depth to secondary calcium carbonate: 10 to 26 inches

Particle-size control section (weighted average):

Clay content: 45 to 55 percent

A horizon

Hue: 10YR

Value: 4 to 6

Chroma: 1 or 2

Texture: Fine sandy loam or loam

Clay content: 15 to 22 percent

EC (dS/m): 0.5 to 2

SAR: 6 to 15

Reaction: Slightly acid or neutral

Btn horizon

Hue: 10YR or 2.5Y

Value: 3 or 4

Chroma: 1 or 2

Texture: Clay loam or clay

Clay content: 35 to 45 percent

Redox concentrations: Amount—0 to 2 percent; size—fine; contrast—faint or distinct; boundary—sharp; location—lining pores; shades—brown or black

Calcium carbonate equivalent: 0 to 2 percent

Identifiable secondary carbonates: Amount—0 to 2 percent; size—fine; kind—nodules; location—in matrix

EC (dS/m): 2 to 10

SAR: 20 to 40

Reaction: Slightly alkaline to strongly alkaline

Btkn horizon (upper part)

Hue: 10YR or 2.5Y

Value: 4 to 6

Chroma: 1 or 2

Texture: Clay loam or clay

Clay content: 35 to 45 percent

Redox concentrations: Amount—0 to 2 percent; size—fine; contrast—faint or distinct; boundary—sharp to diffuse; location—throughout; shades—brown, black, or yellow

Calcium carbonate equivalent: 5 to 15 percent

Identifiable secondary carbonates: Amount—2 to 10 percent; size—fine or medium; kind—masses or nodules; location—in matrix

EC (dS/m): 10 to 20

SAR: 25 to 45

Effervescence: Very slight to strong

Reaction: Moderately alkaline or strongly alkaline

Btkn horizon (lower part)

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 3 to 6

Texture: Sandy clay loam, clay loam, or clay

Clay content: 20 to 40 percent

Redox concentrations: Amount—2 to 8 percent; size—fine to coarse; contrast—faint to prominent; boundary—sharp to diffuse; location—throughout; shades—brown, black, or yellow

Redox depletions: Amount—0 to 15 percent; size—fine to coarse; contrast—faint or distinct; boundary—sharp to diffuse; location—throughout; shades—gray

Calcium carbonate equivalent: 10 to 20 percent

Identifiable secondary carbonates: Amount—3 to 10 percent; size—fine or medium; kind—masses or nodules; location—in matrix

EC (dS/m): 15 to 25

SAR: 30 to 45

Effervescence: Slight to strong

Reaction: Moderately alkaline or strongly alkaline

Noria Series

The Noria series consists of very deep, saline, very poorly drained, rapidly permeable soils on dune slacks in deflation flats of active and recently active dune complexes. These nearly level soils formed in sandy eolian sediments of Holocene age overlying loamy eolian deposits of Pleistocene age. Slopes are 0 to 1 percent. Mean annual air temperature is about 73 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Mixed, hyperthermic Sodic Psammaquents

Typical Pedon

Noria fine sand, in an area of Potrero-Lopeno-Noria complex, 0 to 5 percent slopes, on a slightly concave, 0.5 percent slope in rangeland at an elevation of 19 feet. (Colors are for moist soil unless otherwise stated.) (fig. 47)

Anz—0 to 3 inches; olive gray (5Y 5/2) fine sand, light olive gray (5Y 6/2) dry; single grain; loose, very friable; 7 percent fine and medium roots; 2 percent very fine and fine pores; 10 percent medium faint light gray (2.5Y 7/1) sand coats; 5 percent fine faint olive (5Y 5/4) masses of oxidized iron with sharp boundaries lining pores; 2 percent fine and medium fragments of land crab remains; strongly saline; slightly effervescent; strongly alkaline; clear smooth boundary.

Cnzg1—3 to 7 inches; light brownish gray (2.5Y 6/2) fine sand, light gray (2.5Y 7/2) dry; single grain; loose, very friable; 5 percent fine roots; 3 percent very fine and fine pores; 2 percent fine distinct olive brown (2.5Y 4/4) and 10 percent fine and medium distinct light yellowish brown (2.5Y 6/4) masses of oxidized iron with sharp boundaries lining pores; 1 percent fine and medium iron-manganese masses; faint thin bedding planes; 1 percent medium salt crystals; slightly saline; slightly effervescent; very strongly alkaline; clear smooth boundary.

Cnzg2—7 to 21 inches; light brownish gray (2.5Y 6/2) fine sand, light gray (2.5Y 7/2) dry; single grain; loose, very friable; 5 percent very fine and fine roots; 3 percent very fine and fine pores; 5 percent fine distinct light olive brown (2.5Y 5/4)

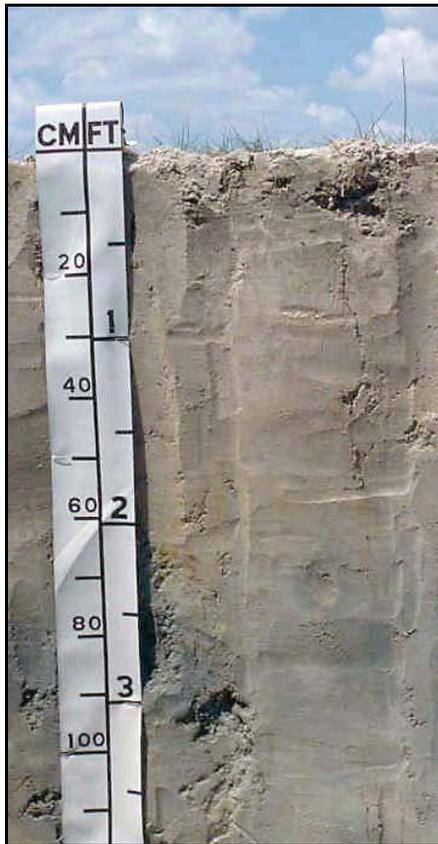


Figure 47.—Profile of Noria fine sand in an area of Potrero-Lopeno-Noria complex, 0 to 5 percent slopes. Noria soils are poorly drained, evidenced by the gray colors. These soils are ponded from September to May. (Scale in CM-centimeters, and FT-feet)

- masses of oxidized iron with sharp boundaries lining pores; 4 percent fine and medium iron-manganese masses; faint thin bedding planes; slightly saline; very slightly effervescent; very strongly alkaline; clear wavy boundary.
- Cnzg3—21 to 33 inches; light olive gray (5Y 6/2) fine sand, light gray (5Y 7/2) dry; single grain; loose, very friable; 3 percent very fine and fine roots; 3 percent very fine and fine pores; 3 percent fine distinct light olive brown (2.5Y 5/6) masses of oxidized iron with sharp boundaries lining pores; 2 percent fine and medium iron-manganese masses; 5 percent fine and medium faint light greenish gray (10GY 7/1) iron depletions with clear boundaries in the matrix; 2 percent fine and medium fragments of land crab remains; faint thin bedding planes; slightly saline; very slightly effervescent; very strongly alkaline; clear wavy boundary.
- Cnzg4—33 to 39 inches; greenish gray (10GY 5/1) fine sand, light gray (5Y 7/2) dry; single grain; loose, very friable; 3 percent very fine and fine roots; 5 percent very fine and fine pores; 3 percent fine and medium distinct olive (5Y 5/4) masses of oxidized iron with sharp boundaries lining pores; 20 percent medium faint greenish gray (5GY 6/1) and 2 percent fine distinct bluish gray (5B 5/1) iron depletions with diffuse boundaries in the matrix; faint thin bedding planes; moderately saline; very slightly effervescent; strongly alkaline; clear wavy boundary.
- Bnzgb1—39 to 60 inches; light olive gray (5Y 6/2) loamy fine sand, light gray (5Y 7/2) dry; weak coarse prismatic structure parting to weak fine and medium subangular blocky; soft, very friable; 2 percent very fine and fine roots; 3 percent very fine

and fine pores; 5 percent fine distinct pale olive (5Y 6/4) masses of oxidized iron with sharp boundaries lining pores; 10 percent fine and medium faint light greenish gray (10GY 7/1) and 4 percent medium faint greenish gray (10GY 5/1) iron depletions with diffuse boundaries in the matrix; moderately saline; noneffervescent; strongly alkaline; gradual wavy boundary.

Bnzgb2—60 to 80 inches; light gray (5Y 7/2) loamy fine sand, light gray (5Y 7/2) dry; weak coarse prismatic structure parting to weak fine and medium subangular blocky; soft, very friable; 3 percent very fine and fine pores; 3 percent fine and medium faint light greenish gray (5GY 7/1) iron depletions with diffuse boundaries in the matrix; moderately saline; noneffervescent; moderately alkaline.

Type Location

Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Avenue in Sarita, 4.8 miles south on U.S. Highway 77, 7.6 miles east on ranch road, 2 miles southeast and south on ranch road, and 4,100 feet west southwest in a deflation flat in rangeland. La Parra Ranch Southwest, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 07 minutes, 17.6 seconds, North; Longitude: 97 degrees, 40 minutes, 27.5 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. Although rainfall amounts are that of an Ustic soil moisture regime, the soil has a permanent water table at depths of 0 to 12 inches in most years, from September through May, and has a water table within 40 inches throughout the year in most years. These soils are saturated or ponded for periods of several days to several weeks following heavy rains.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 0 to 10 inches

Depth to iron depletions or depleted matrix: 0 to 30 inches

Depth to endosaturation: 0 to 12 inches, in most years from September through May, and within 40 inches in most years throughout the year.

Anz horizon

Hue: 10YR, 2.5Y, or 5Y

Value: 4 or 5, or 5 or 6 dry

Chroma: 2 or 3

Texture: Loamy fine sand or fine sand

Redox concentrations: Amount—0 to 7 percent; size—fine or medium; contrast—faint or distinct; boundaries—clear or sharp

Redox depletions: Amount—0 to 2 percent; size—fine or medium; contrast—faint or distinct; boundaries—diffuse or clear

EC (dS/m): 8 to 20

SAR: 13 to 80

Reaction: Neutral to strongly alkaline

Cnzg horizon

Hue: 10YR to 5Y, 10GY

Value: 5 or 6, 6 or 7 dry

Chroma: 2 or 3 (3 chroma are inherent because of source material of the eolian sands)

Texture: Loamy fine sand or fine sand

Redox concentrations: Amount—0 to 12 percent; size—fine or medium; contrast—faint or distinct; boundaries—clear or sharp

Redox depletions: Amount—0 to 20 percent; size—fine or medium; contrast—faint or distinct; boundaries—diffuse or clear

EC (dS/m): 2 to 20

SAR: 13 to 50

Reaction: Neutral to very strongly alkaline

Bngzb horizon

Hue: 10YR, 2.5Y, 5Y, 5GY, or 5G

Value: 5 to 7, 6 to 8 dry

Chroma: 1 to 3

Texture: Loamy fine sand or fine sandy loam

Redox concentrations: Amount—0 to 10 percent; size—fine or medium; contrast—faint or distinct; boundaries—diffuse or sharp

Redox depletions: Amount—0 to 15 percent; size—fine or medium; contrast—faint or distinct; boundaries—diffuse or clear

EC (dS/m): 4 to 16

SAR: 10 to 45

Effervescence: None

Reaction: Neutral to strongly alkaline

Novillo Series

The Novillo series consists of very deep, very slowly permeable, very poorly drained soils that formed in sandy eolian sediments on barrier islands. These nearly level soils are on concave positions in freshwater swales on barrier flats. These soils are ponded for very long periods in normal years and are rarely flooded by high storm surge from strong tropical storms. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Siliceous, hyperthermic Typic Psammaquents

Typical Pedon

Novillo peat, on a concave, 0 to 1 percent slope in freshwater marsh at an elevation of 1 foot. (Colors are for moist soil unless otherwise stated.)

Oi—0 to 2 inches; very dark gray (2.5Y 3/1) peat, very dark gray (2.5Y 3/1) pressed and rubbed; massive; 85 percent very fine and fine, 8 percent medium, and 2 percent coarse roots; dominantly herbaceous roots and fiber; about 10 percent mineral matter dark grayish brown (10YR 4/2) fine sand; non-saline; slightly acid; clear smooth boundary.

A1—2 to 7 inches; dark grayish brown (10YR 4/2) fine sand, grayish brown (10YR 5/2) dry; single grain; loose; 12 percent very fine and fine, and 3 percent medium and coarse roots; 5 percent fine and medium faint grayish brown (10YR 5/2) iron depletions with diffuse boundaries in the matrix; non-saline; slightly acid; clear smooth boundary.

A2—7 to 12 inches; grayish brown (10YR 5/2) fine sand, light brownish gray (10YR 6/2) dry; single grain; loose; 7 percent very fine and fine, and 2 percent medium and coarse roots; 12 percent medium faint dark grayish brown (10YR 4/2) iron depletions with diffuse boundaries in the matrix; non-saline; slightly acid; clear smooth boundary.

Cg1—12 to 19 inches; gray (10YR 5/1) fine sand, gray (10YR 6/1) dry; single grain; loose; 5 percent very fine and fine, and 2 percent medium roots; 15 percent medium faint light brownish gray (2.5Y 6/2) iron depletions with diffuse boundaries in the matrix; non-saline; neutral; gradual smooth boundary.

Cg2—19 to 55 inches; light brownish gray (10YR 6/2) fine sand, light gray (10YR 7/2) dry; single grain; loose; 3 percent very fine and fine roots; 5 percent medium faint gray (10YR 5/1) iron depletions with diffuse boundaries in the matrix; non-saline; neutral; clear smooth boundary.

Ab—55 to 60 inches; dark gray (10YR 4/1) fine sand, dark grayish brown (10YR 4/2) dry; single grain; loose; 1 percent very fine and fine roots; 10 percent medium distinct grayish brown (10YR 5/2) iron depletions with diffuse boundaries in the matrix; non-saline; moderately acid; clear smooth boundary.

Cgb—60 to 80 inches; grayish brown (10YR 5/2) fine sand, light brownish gray (10YR 6/2) dry; single grain; loose; 1 percent very fine and fine roots; 7 percent medium distinct gray (10YR 6/1) iron depletions with diffuse boundaries in the matrix; non-saline; slightly acid.

Type Location

Kleberg County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties, 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore, 0.8 mile southwest on Park Road 22 to the intersection of Novillo and Bird Island Basin Road, 0.56 mile west-northwest on Bird Island Basin Road, and 300 feet south in a freshwater marsh. South Bird Island, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 27 minutes, 59.6 seconds, North; Longitude: 97 degrees, 17 minutes, 57.5 seconds, West.

Range in Characteristics

Soil moisture: Aquic conditions exist between 0 and 6 inches below the soil surface, or the soil is ponded for very long periods in normal years.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 0 to 10 inches

Depth to iron depletions or depleted matrix: 0 to 10 inches

Depth to endosaturation: 0 to 6 inches for long periods throughout the year

Particle-size control section (weighted average):

Clay content: 1 to 3 percent

Sand content: 95 to 99 percent

Other features: The particle-size control section has less than 5 percent silt plus clay.

Oi horizon

Hue: 10YR or 2.5Y

Value: 2 or 3, 2 to 4 pressed and rubbed

Chroma: 1 or 2

Texture: Peat

EC (dS/m): 0 to 4

SAR: 0 to 8

Reaction: Moderately acid to slightly acid

A horizon

Hue: 10YR or 2.5Y

Value: 3 to 5, 4 to 6 dry

Chroma: 1 or 2

Texture: Fine sand

Clay content: 1 to 3 percent

Redox concentrations: Amount—0 to 10 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown

Iron depletions: Amount—0 to 15 percent; size—fine or medium; contrast—faint; boundary—diffuse or clear; shades—gray

EC (dS/m): 0 to 4
SAR: 0 to 8
Reaction: Strongly acid to neutral

Cg horizon

Hue: 10YR or 2.5Y
Value: 5 or 6, 6 or 7 dry
Chroma: 1 or 2
Texture: Fine sand
Clay content: 1 to 3 percent
Redox concentrations: Amount—0 to 15 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown
Iron depletions: Amount—2 to 15 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray
EC (dS/m): 0 to 4
SAR: 2 to 10
Reaction: Slightly acid to slightly alkaline

Ab horizon

Hue: 10YR or 2.5Y
Value: 3 or 4, 4 or 5 dry
Chroma: 1 or 2
Texture: Fine sand
Clay content: 1 to 3 percent
Redox concentrations: Amount—0 to 10 percent; size—fine to coarse; contrast—faint to prominent; boundary—clear or sharp; shades—brown
Iron depletions: Amount—2 to 15 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray
EC (dS/m): 0 to 4
SAR: 2 to 10
Reaction: Moderately acid to moderately alkaline

Cgb horizon

Hue: 10YR or 2.5Y
Value: 5 or 6, 6 or 7 dry
Chroma: 1 or 2
Texture: Fine sand
Clay content: 1 to 3 percent
Redox concentrations: Amount—0 to 15 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown
Iron depletions: Amount—2 to 15 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray
EC (dS/m): 0 to 4
SAR: 2 to 10
Reaction: Slightly acid to slightly alkaline

Nueces Series

The Nueces series consists of very deep, moderately well drained, moderately slowly permeable soils that formed in sandy eolian deposits over loamy Quaternary age alluvium. These nearly level to gently sloping soils are on the Sand sheet Prairie of the South Texas Coastal Plain. Slope ranges from 0 to 5 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 25 inches.

Taxonomic Class

Loamy, mixed, active, hyperthermic Arenic Paleustalfs

Typical Pedon

Nueces fine sand, 0 to 3 percent slopes in rangeland at an elevation of 188 feet. (Colors are for dry soil unless otherwise stated.)

- A—0 to 10 inches; brown (10YR 4/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose; very friable, nonsticky and nonplastic; neutral; gradual smooth boundary.
- E1—10 to 23 inches; brown (7.5YR 4/4) fine sand, brown (7.5YR 5/4) dry; single grain; loose; very friable, nonsticky and nonplastic; neutral; gradual smooth boundary.
- E2—23 to 33 inches; brown (7.5YR 5/4) fine sand, light brown (7.5YR 6/4) dry; single grain; loose; very friable, nonsticky and nonplastic; neutral; abrupt wavy boundary.
- 2Bt1—33 to 40 inches; grayish brown (10YR 5/2) sandy clay loam, light brownish gray (10YR 6/2) dry; moderate coarse prismatic structure parting to moderate medium angular blocky; extremely hard, firm, slightly sticky, and slightly plastic; common fine pores; few distinct clay films and organic coatings on faces of peds; common fine and medium distinct reddish yellow (7.5YR 6/6) masses of oxidized iron; neutral; gradual smooth boundary.
- 2Bt2—40 to 48 inches; light brownish gray (10YR 6/2) sandy clay loam, light gray (10YR 7/2) dry; moderate medium prismatic structure parting to moderate medium angular blocky; extremely hard, firm, slightly sticky, and slightly plastic; few fine pores; common distinct clay films and organic coatings on faces of peds; many medium coarse prominent reddish yellow (5YR 6/8) masses of oxidized iron; neutral; gradual wavy boundary.
- 2Bt3—48 to 80 inches; brownish yellow (10YR 6/6) sandy clay loam, yellow (10YR 7/6) dry; weak medium blocky structure; very hard, firm, slightly sticky, and slightly plastic; few distinct dark grayish brown (10YR 4/2) few faint clay films and organic stains on faces of peds; common coarse prominent reddish yellow (5YR 6/8) masses of oxidized iron; moderately alkaline.

Type Location

Brooks County, Texas; from the intersection of U.S. Highway 281 and Farm Road 755 in Rachal, 6.45 miles west on Farm Road 755, 2.1 miles south on caliche road to dead end, and 150 feet east in rangeland. Hartland, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 51 minutes, 44 seconds, North; Longitude: 98 degrees, 14 minutes, 12 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. Precipitation pattern is moist during spring and fall months and dry during summer and winter months. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Solum thickness: More than 80 inches

Depth to argillic horizon: 20 to 40 inches

Particle-size control section (weighted average):

Clay content: 18 to 35 percent

Coarse fragments: 0 to 5 percent

CEC/clay ratio: 0.40 to 0.60

A and E horizons

Hue: 7.5YR or 10YR

Value: 4 to 7

Chroma: 2 to 4

Texture: Fine sand or loamy fine sand

Clay content: 2 to 12 percent

Coarse fragments: 0 to 5 percent fine gravel

EC (dS/m): 0 to 2

Gypsum: 0 to 1 percent

SAR: 0 to 2

Effervescence: None

Reaction: Moderately acid to neutral

2Bt horizon

Hue: 7.5YR to 2.5Y

Value: 5 to 8

Chroma: 2 to 6

Texture: Fine sandy loam or sandy clay loam

Clay content: 18 to 35 percent

Clay films: Amount—few or common; distinctness—faint to prominent; location—on faces of peds, lining pores, and bridging of sand grains

Redox concentrations: (Upper part) amount—common or many; contrast—faint to prominent; boundary—diffuse; shades—yellow; (lower part) amount—none to common; size—fine or medium; contrast—faint to prominent; boundaries—sharp; shades—yellow

Redox depletions: Amount—none to common; size—fine or medium; contrast—faint to prominent; boundary—diffuse in the upper part, sharp in the lower part; shades—gray

Coarse fragments: 0 to 5 percent fine pebbles

Calcium carbonate equivalent: 0 to 2 percent

EC (dS/m): 0 to 2

Gypsum: 0 to 2 percent

SAR: 0 to 7

Effervescence: Noneffervescent or very slightly effervescent in the lower part

Reaction: Neutral to moderately alkaline

Other features: Some pedons have a darker colored horizon that is 1 to 3 inches thick and enriched with organic matter overlying the 2Bt horizon. This layer contains less than 1 percent organic matter.

Orelia Series

The Orelia series consists of very deep, well drained, slowly permeable soils that formed in loamy fluviomarine deposits of Pleistocene age. These nearly level soils are on flats on coast plains. Slope ranges from 0 to 3 percent. Mean annual air temperature is about 71 degrees F, and mean annual precipitation is about 29 inches.

Taxonomic Class

Fine-loamy, mixed, superactive, hyperthermic Typic Argiustolls

Typical Pedon

Orelia fine sandy loam, in pastureland; elevation of 180 feet. (Colors are for dry soil unless otherwise stated.)

- A—0 to 10 inches; very dark gray (10YR 3/1) fine sandy loam, dark grayish brown (10YR 4/2) dry; weak coarse subangular blocky structure; hard, very friable; common fine roots and common very fine roots; common fine tubular and common very fine tubular pores; 1 percent fine faint dark yellowish brown (10YR 4/4) masses of oxidized iron with clear boundaries lining pores; slightly acid; very abrupt smooth boundary.
- Bt1—10 to 15 inches; very dark grayish brown (10YR 3/2) sandy clay loam, very dark grayish brown (10YR 3/2) dry; strong medium prismatic structure parting to strong medium angular blocky; very hard, firm; common very fine roots; common very fine tubular pores; 10 percent distinct very dark grayish brown (10YR 3/2) clay films on all faces of peds; few cracks 1 to 3 mm in width; slightly acid; clear wavy boundary.
- Bt2—15 to 22 inches; dark grayish brown (10YR 4/2) sandy clay loam, dark grayish brown (10YR 4/2) dry; moderate medium prismatic structure parting to moderate medium angular blocky; very hard, firm; common very fine roots; common very fine tubular pores; 10 percent distinct pressure faces; 15 percent distinct dark grayish brown (10YR 4/2) clay films on all faces of peds; few cracks 3 to 7 mm in width; 1 percent fine faint spherical black (10YR 2/1) nodules of iron-manganese with sharp boundaries in matrix; 1 percent fine faint brown (10YR 4/3) masses of oxidized iron with sharp boundaries on faces of peds; 1 percent fine distinct yellowish brown (10YR 5/6) masses of oxidized iron with sharp boundaries on faces of peds; neutral; gradual wavy boundary.
- Bt3—22 to 30 inches; dark grayish brown (10YR 4/2) sandy clay loam, grayish brown (10YR 5/2) dry; moderate medium and coarse prismatic structure parting to moderate medium and coarse angular blocky; very hard, firm; common very fine roots in cracks; common very fine tubular pores; 20 percent prominent pressure faces; 20 percent distinct grayish brown (10YR 5/2) clay films on vertical faces of peds; few cracks 3 to 7 mm in width; few cracks filled with very dark gray (10YR 3/1) sandy clay loam; 1 percent fine distinct spherical black (10YR 2/1) nodules of iron-manganese with sharp boundaries in matrix; 1 percent fine distinct dark yellowish brown (10YR 4/6) masses of oxidized iron with sharp boundaries in matrix; 2 percent medium faint brown (10YR 4/3) masses of oxidized iron with clear boundaries in matrix; slightly alkaline; clear wavy boundary.
- Btk1—30 to 43 inches; 50 percent dark grayish brown (10YR 4/2) and 50 percent grayish brown (10YR 5/2) sandy clay loam, dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) dry; moderate coarse angular blocky structure; very hard, firm; common very fine roots in cracks; common very fine tubular pores; 5 percent prominent pressure faces; 10 percent distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few cracks 1 to 3 mm in width; few cracks filled with very dark gray (10YR 3/1) loam; 2 percent fine and medium faint brown (10YR 4/3) masses of oxidized iron with clear boundaries in matrix; 1 percent fine white (2.5Y 8/1) nodules of calcium carbonate; 10 percent medium and coarse white (2.5Y 8/1) masses of calcium carbonate; strong effervescence; moderately alkaline; gradual wavy boundary.
- Btk2—43 to 57 inches; brown (10YR 5/3) sandy clay loam, pale brown (10YR 6/3) dry; weak coarse subangular blocky structure; hard, friable; common very fine roots; common very fine tubular pores; 10 percent distinct very dark gray (10YR 3/1) organo-argillans on vertical faces of peds; 30 percent distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; 2 percent fine white (2.5Y 8/1) nodules of calcium carbonate; 35 percent medium and coarse white (2.5Y 8/1) masses of calcium carbonate; violent effervescence; moderately alkaline; gradual wavy boundary.
- Btk3—57 to 75 inches; light yellowish brown (2.5Y 6/4) sandy clay loam, light yellowish brown (10YR 6/4) dry; weak coarse subangular blocky structure; hard, friable; common very fine roots; 15 percent distinct light yellowish brown (2.5Y 6/4) clay films

on vertical faces of peds; 5 percent fine white (2.5Y 8/1) nodules of calcium carbonate; 25 percent medium and coarse white (2.5Y 8/1) masses of calcium carbonate; strong effervescence; moderately alkaline; gradual wavy boundary. Btk4—75 to 80 inches; light olive brown (2.5Y 5/4) sandy clay loam, light yellowish brown (10YR 6/4) dry; weak very coarse subangular blocky structure; slightly hard, friable; few very fine roots; 5 percent distinct light yellowish brown (10YR 6/4) clay films on vertical faces of peds; 5 percent fine white (2.5Y 8/1) nodules of calcium carbonate; 20 percent medium and coarse white (2.5Y 8/1) masses of calcium carbonate; 3 percent medium very dark gray (10YR 3/1) insect casts; strong effervescence; moderately alkaline.

Type Location

Bee County, Texas; from the intersection of FM 202 and County Road 425 at Chase Field State Prison near Beeville; 300 feet southwest in pasture. Beeville East, Texas USGS topographic quadrangle; NAD 83; Latitude: 28 degrees, 22 minutes, 48.5 seconds, North; Longitude: 97 degrees, 39 minutes, 13.0 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is 4 to 12 inches. These soils remain dry in the soil moisture control section for more than 90 cumulative days. The dry period occurs from January to April and in July to August.

Mean annual soil temperature: 72 to 74 degrees F

Depth to argillic horizon: 7 to 11 inches

Depth to secondary calcium carbonate: 22 to 34 inches

Particle-size control section (weighted average):

Clay content: 25 to 33 percent

CEC/clay ratio: 0.6 to 0.75

A horizon

Hue: 10YR

Value: 2 to 4

Chroma: 1 or 2

Texture: Fine sandy loam or sandy clay loam

Clay content: 10 to 23 percent

EC (dS/m): 0 to 0.5

SAR: 0 to 4

Reaction: Slightly acid or neutral

Bt horizon (upper part)

Hue: 10YR

Value: 2 to 4

Chroma: 1 or 2

Texture: Sandy clay loam, clay loam, or sandy clay

Clay content: 25 to 37 percent

Redox concentrations: Amount—0 to 2 percent; shades—brown

EC (dS/m): 0.2 to 0.7

SAR: 0 to 6

Reaction: Slightly acid or neutral

Bt horizon (lower part)

Hue: 10YR

Value: 4 to 6

Chroma: 1 or 2

Texture: Sandy clay loam or clay loam

Clay content: 25 to 33 percent

Redox concentrations: Amount—0 to 2 percent; shades—brown

EC (dS/m): 0.2 to 2

SAR: 2 to 12

Reaction: Neutral or slightly alkaline

Btk horizon

Hue: 10YR or 2.5Y

Value: 4 to 7

Chroma: 2 to 4

Texture: Sandy clay loam or clay loam

Clay content: 23 to 33 percent

Redox concentrations: Amount—0 to 2 percent; shades—brown

Calcium carbonate equivalent: 5 to 15 percent

Identifiable secondary carbonate: Amount—2 to 8 percent; kind—nodules or masses

EC (dS/m): 1 to 4

SAR: 6 to 14

Effervescence: Very slight to strong

Reaction: Moderately alkaline or strongly alkaline

Padre Series

The Padre series consists of very deep, somewhat poorly drained, very slowly permeable soils that formed in sandy eolian and storm washover sediments on barrier islands. These nearly level or very gently sloping soils are on low stabilized dunes on barrier flats. These soils are subject to occasional flooding by high storm surge from strong tropical storms. Slope ranges from 0 to 2 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Hyperthermic, uncoated Aquic Quartzipsamments

Typical Pedon

Padre fine sand, in an area of Mustang-Padre complex, 0 to 2 percent slopes on a southwest facing 1.5 percent slope in rangeland at an elevation of 6 feet. (Colors are for moist soil unless otherwise stated.) (fig. 48)

A1—0 to 7 inches; brown (10YR 4/3) fine sand, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure parting to single grain; loose; 6 percent very fine and fine roots and 1 percent medium roots; 2 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron with sharp boundaries lining pores; non-saline; moderately acid; clear smooth boundary.

A2—7 to 19 inches; brown (10YR 5/3) fine sand, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure parting to single grain; loose; 5 percent very fine and fine roots; 3 percent fine and medium distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) masses of oxidized iron with sharp boundaries lining pores; non-saline; strongly acid; clear smooth boundary.

C—19 to 28 inches; brown (10YR 5/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; 4 percent very fine and fine roots; 3 percent fine and medium distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) masses of oxidized iron with sharp boundaries lining pores; non-saline; moderately acid; clear smooth boundary.



Figure 48.—Profile of Padre fine sand in an area of Mustang-Padre complex, 0 to 2 percent slopes. Padre soils are on low mounds or stabilized dunes on barrier flat areas of barrier islands. (Scale in CM-centimeters, and FT-feet)

- Cg1—28 to 38 inches; grayish brown (10YR 5/2) fine sand, light brownish gray (10YR 6/2) dry; single grain; loose; 3 percent very fine and fine roots; 5 percent fine and medium yellowish brown (10YR 5/8) and brownish yellow (10YR 6/6) masses of oxidized iron with sharp boundaries lining pores; non-saline; moderately acid; clear smooth boundary.
- Cg2—38 to 58 inches; light brownish gray (10YR 6/2) fine sand, light gray (10YR 7/2) dry; single grain; loose; 1 percent very fine and fine roots; 2 percent fine and medium distinct yellowish brown (10YR 5/4) masses of oxidized iron with sharp boundaries lining pores; non-saline; moderately acid; gradual smooth boundary.
- Cg3—58 to 80 inches; light brownish gray (10YR 6/2) fine sand, light gray (10YR 7/2) dry; single grain; loose; 1 percent very fine and fine roots; 5 percent medium faint grayish brown (10YR 5/2) iron depletions with diffuse boundaries in matrix; non-saline; moderately acid.

Type Location

Kleberg County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties; 8.0 miles southwest on Park Road 22 to the entrance station of Padre Island National Seashore; 0.8 mile southwest on Park Road 22 to the intersection of Novillo and Bird Island Basin Road; 250 feet east on caliche and shell road; 200 feet north on low mound in rangeland. South Bird Island,

Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 27 minutes, 49.8 seconds, North; Longitude: 97 degrees, 17 minutes, 23.0 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime bordering on an Udic soil moisture regime. The soil moisture control section is dry in some or all parts for less than 120 cumulative days in normal years. Although rainfall amounts are that of an Ustic soil moisture regime, the effective precipitation is higher because of relative landscape position and a fluctuating water table. The water table occurs in most pedons at a depth of 30 to 50 inches for at least two months in most years.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 0 to 10 inches

Depth to iron depletions: 25 to 40 inches

Depth to endosaturation: 30 to 50 inches for at least two months in most years

Particle-size control section (weighted average):

Clay content: 1 to 3 percent

Sand content: 95 to 99 percent

Other features: The particle-size control section has less than 5 percent silt plus clay.

A horizon

Hue: 10YR

Value: 4 to 6, 5 to 7 dry

Chroma: 2 or 3

Texture: Fine sand

Redox concentrations: Amount—1 to 7 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; color—brown

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Very strongly acid to neutral

C horizon

Hue: 10YR

Value: 5 to 7, 6 to 8 dry

Chroma: 2 or 3

Texture: Fine sand

Redox concentrations: Amount—1 to 10 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Strongly acid to neutral

Cg horizon

Hue: 10YR or 2.5Y

Value: 5 to 7, 6 to 8 dry

Chroma: 1 or 2

Texture: Fine sand

Redox concentrations: Amount—0 to 10 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown or yellow

Iron depletions: Amount—0 to 15 percent; size—fine to coarse; contrast—faint or distinct; boundary—diffuse or clear; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Strongly acid to neutral

Padrones Series

The Padrones series consists of very deep, moderately well drained, moderately slowly permeable soils that formed in sandy eolian deposits over loamy alluvium of Pleistocene age. These nearly level to gently sloping soils are on the Sand sheet Prairie of the South Texas Coastal Plain. Slope ranges from 0 to 3 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 26 inches.

Taxonomic Class

Loamy, mixed, active, hyperthermic Arenic Natrustalfs

Typical Pedon

Padrones fine sand, in nearly level rangeland at an elevation of 73 feet. (Colors are for dry soil unless otherwise stated.) (fig. 49)

- A—0 to 17 inches; brown (10YR 4/3) fine sand, pale brown (10YR 6/3) dry; single grain; loose, very friable; common very fine and fine roots; neutral; clear smooth boundary.
- E—17 to 28 inches; pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose, very friable, few very fine and fine roots; few krotovina; neutral; abrupt smooth boundary.
- 2Btn1—28 to 30 inches; grayish brown (10YR 5/2) loamy fine sand, light brownish gray (10YR 6/2) dry; moderate coarse prismatic structure parting to moderate medium blocky; very hard, firm; few very fine and fine roots; few faint clay films, clean sand grains, and organic coatings on surfaces of prisms; common fine distinct brownish yellow (10YR 6/8) and few fine distinct strong brown (7.5YR 5/6) masses of oxidized iron; few fine black concentrations; neutral; clear smooth boundary.
- 2Btn2—30 to 34 inches; grayish brown (10YR 5/2) fine sandy loam, light brownish gray (10YR 6/2) dry; strong coarse prismatic structure parting to moderate medium blocky; extremely hard, very firm; few very fine and fine roots; few faint clay films on faces of peds, clean sand grains on prism surfaces; organic coatings on faces of peds; few fine and medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; few fine black concentrations; slightly alkaline; clear smooth boundary.
- 2Btn3—34 to 40 inches; light brownish gray (10YR 6/2) fine sandy loam, light gray (10YR 7/2) dry; moderate coarse prismatic structure parting to moderate medium blocky; very hard, firm; few very fine roots; few faint clay films on faces of peds; many medium distinct yellow (10YR 7/8) and few fine prominent red (2.5YR 5/6) masses of oxidized iron; few fine black concentrations; slightly alkaline; gradual smooth boundary.
- 2Btn4—40 to 59 inches; light gray (2.5Y 7/2) fine sandy loam, pale yellow (2.5Y 8/2) dry; weak coarse prismatic structure parting to moderate medium blocky; very hard, firm; few faint clay films on faces of peds; common fine distinct yellow (10YR 8/8) and few fine prominent red (2.5YR 5/6) masses of oxidized iron; few fine black concentrations; few white spots about 1 cm in diameter assumed to be salts; moderately alkaline; gradual smooth boundary.
- 2Btn5—59 to 80 inches; light gray (2.5Y 7/2) fine sandy loam, pale yellow (2.5Y 8/2) dry; weak moderate subangular blocky structure; very hard, firm; few faint clay films on faces of peds; few fine distinct yellow (10YR 7/6) masses of oxidized iron; few fine black concentrations; few white spots about 1 cm in diameter assumed to be salts; few calcium carbonate nodules up to 3.5 cm in diameter; strongly alkaline.



Figure 49.—Profile of Padrones fine sand in an area of Padrones fine sand, 0 to 3 percent slopes. The natric horizon, shown with good columnar structure begins at a depth of about 24 inches. (Scale in M-meters, and FT-feet)

Type Location

Brooks County, Texas; from post office in Encino; 0.6 mile north on U.S. Highway 281 to the gate of the Encino Division of the King Ranch; 5.7 miles east on ranch road; 5.0 miles south on ranch road; 55 feet west in rangeland. San Tomas Camp, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 52 minutes, 41 seconds, North; Longitude: 98 degrees, 03 minutes, 27 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. Precipitation pattern is moist during spring and fall months and dry during summer and winter months. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

A horizon

Hue: 10YR

Value: 4 to 6

Chroma: 3 or 4

Texture: Fine sand or loamy fine sand

Reaction: Moderately acid to neutral

E horizon

Hue: 10YR

Value: 6 to 8

Chroma: 3 or 4

Texture: Fine sand or loamy fine sand

Reaction: Moderately acid to neutral

2Btn horizon

Hue: 10YR or 2.5Y

Value: 5 to 8

Chroma: 2 or 4

Texture: Loamy fine sand, fine sandy loam, or sandy clay loam

Clay content: 8 to 24 percent in the upper 20 inches

Redox concentrations: Size—fine or medium; amount—few or common; contrast—distinct or prominent; boundaries—sharp; shades—red, brown, or yellow

ESP: More than 38 within upper 16 inches

EC (dS/cm): 0 to 3

SAR: 13 to 30

Reaction: Neutral to strongly alkaline

Other features: One or more lithologic discontinuities related to sand and silt ratios, occur in the Bt horizon.

Palobia Series

The Palobia series consists of very deep, moderately well drained, moderately slowly permeable soils that formed in sandy eolian deposits over loamy sediments of Pleistocene age. These nearly level to gently sloping soils are on the Sand sheet Prairie of the South Texas Coastal Plain. Slope ranges from 0 to 3 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 25 inches.

Taxonomic Class

Fine-loamy, mixed, active, hyperthermic Typic Natrustalfs

Typical Pedon

Palobia loamy fine sand, on a southeast facing, slightly convex, 1 percent slope at an elevation of 34 feet in cropland. (Colors are for dry soil unless otherwise stated.) (fig. 50)

Ap—0 to 5 inches; brown (7.5YR 4/4) loamy fine sand, brown (7.5YR 5/4) dry; weak fine granular and subangular blocky structure; slightly hard, very friable; common very fine and fine roots; few fine pores; slightly acid; clear smooth boundary.

A—5 to 9 inches; brown (7.5YR 4/4) loamy fine sand, brown (7.5YR 5/4) dry; weak fine and medium subangular blocky structure; slightly hard, very friable; common very fine and fine roots; few fine pores; neutral; abrupt smooth boundary.



Figure 50.—Profile of Palobia loamy fine sand, in an area of Palobia loamy fine sand, 1 to 3 percent slopes. The natric horizon with coarse columnar and prismatic structure, are common in soils high in sodium, begins at a depth of 1 foot. (Scale in M-meters, and FT-feet)

- 2B_{tn}1—9 to 14 inches; brown (7.5YR 4/2) sandy clay loam, brown (7.5YR 5/2) dry; strong coarse prismatic structure parting to moderate medium blocky; extremely hard, firm; few very fine and fine roots; common fine pores; common distinct clay films on faces of peds; few clean sand grains on faces of peds; common medium distinct grayish brown (10YR 5/2) masses of redox depletions, few fine distinct strong brown (7.5YR 5/6) and yellowish red (5YR 4/6) masses of oxidized iron; slightly saline, slightly alkaline; clear smooth boundary.
- 2B_{tn}2—14 to 21 inches; brown (7.5YR 5/4) sandy clay loam, light brown (7.5YR 6/4) dry; moderate coarse prismatic structure parting to moderate medium blocky; extremely hard, firm; few very fine and fine roots; few fine pores; common faint clay films on faces of peds; few clean sand grains on faces of peds; few fine faint strong brown (7.5YR 4/6) masses of oxidized iron; slightly saline, slightly alkaline; clear smooth boundary.
- 2B_{tknc}—21 to 40 inches; light yellowish brown (10YR 6/4) sandy clay loam, very pale brown (10YR 7/4) dry; moderate coarse prismatic structure parting to moderate medium blocky; extremely hard, firm; few very fine roots; few faint clay skins on faces of peds; few fine and medium dark iron-manganese concretions; few fine nodules of calcium carbonate; moderately saline, moderately alkaline; gradual smooth boundary.

2BCknc1—40 to 56 inches; light yellowish brown (2.5Y 6/4) sandy clay loam, pale yellow (2.5Y 7/4) dry; moderate medium subangular blocky structure; very hard, firm; common fine and medium dark iron-manganese concretions and stains; few fine nodules of calcium carbonate; strongly saline, strongly alkaline; gradual smooth boundary.

2BCknc2—56 to 80 inches; light yellowish brown (2.5Y 6/4) sandy clay loam, pale yellow (2.5Y 7/4) dry; weak fine subangular blocky structure; very hard, firm; common fine and medium dark iron-manganese concretions and stains; few fine nodules of calcium carbonate; strongly saline, strongly alkaline.

Type Location

Brooks County, Texas; from the intersection of U.S. Highway 281 and Texas Highway 285 in Falfurrias; 6.0 miles east on State Highway 285 to the intersection with Farm Road 2191; 3.8 miles north and west on Farm Road 2191; 30 feet south in cropland. Premont East, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 15 minutes, 25 seconds, North; Longitude: 98 degrees, 05 minutes, 15 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. Precipitation pattern is moist during spring and fall months and dry during summer and winter months. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Solum thickness: More than 80 inches

Depth to secondary carbonates: 20 to 36 inches

Electrical conductivity: Ranges to as much as 16 dS/m within 80 inches

Lithologic discontinuities: One or more occur in most pedons

Particle-size control section (weighted average):

Clay content: 21 to 35 percent

A or Ap horizon

Hue: 7.5YR or 10YR

Value: 4 to 6

Chroma: 2 to 4

Texture: Loamy fine sand or fine sandy loam

Reaction: Moderately acid to neutral

2Btn horizon

Hue: 7.5YR or 10YR

Value: 4 to 6

Chroma: 2 to 4; the darker colors are in the upper part

Texture: Sandy clay loam

Redox concentrations: Amount—few to many; shades—red, brown, or yellow

Iron depletions: Amount—few to many; shades—gray

Iron-manganese concretions: None or few, in some pedons

ESP: More than 15 percent within the upper 16 inches and increases with depth

Reaction: Neutral to moderately alkaline

2Btkn horizon

Hue: 10YR

Value: 5 to 7

Chroma: 2 to 4

Texture: Sandy clay loam

Redox concentrations: Amount—none to common; shades—red, brown, or yellow

Iron-manganese concretions: Amount—none to common

Calcium carbonate: Amount—none to common; kind—masses or nodules

ESP: More than 15 percent and increases with depth

Reaction: Neutral to strongly alkaline

2BCkn horizon

Hue: 10YR or 2.5Y

Value: 6 to 8

Chroma: 2 to 4

Texture: Sandy loam or sandy clay loam

Redox concentrations: Amount—none to common; shades—brown or yellow

Iron-manganese concretions: Amount—common to many

Calcium carbonate concretions: Amount—few or common; kind—masses and nodules

ESP: More than 15 percent and increases with depth

Reaction: Moderately or strongly alkaline

Panam Series

The Panam series consists of very deep, somewhat poorly drained, rapidly permeable soils that formed in sandy, eolian, and storm washover sediments on barrier islands. These nearly level or very gently sloping soils are on low stabilized dunes on barrier flats. These soils are subject to occasional flooding by high storm surge from strong tropical storms. Slope ranges from 0 to 2 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Hyperthermic, uncoated Aquic Quartzipsamments

Typical Pedon

Panam fine sand, in an area of Mustang-Panam complex, 0 to 2 percent slopes; on a southeast facing 1.5 percent slope in rangeland at an elevation of 6 feet. (Colors are for moist soil unless otherwise stated.) (fig. 51)

- A1—0 to 4 inches; brown (10YR 4/3) fine sand, brown (10YR 5/3), dry; single grain; loose; 7 percent very fine and fine roots and 1 percent medium roots; 1 percent fine and medium faint yellowish brown (10YR 5/4) and 1 percent fine and medium distinct brownish yellow (10YR 6/6) masses of oxidized iron with sharp boundaries lining pores; 1 percent sand-sized seashell fragments; non-saline; noneffervescent; slightly alkaline; clear smooth boundary.
- A2—4 to 9 inches; brown (10YR 5/3) fine sand, pale brown (10YR 6/3), dry; single grain; loose; 5 percent very fine and fine roots and 1 percent medium roots; 1 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron with sharp boundaries lining pores; 1 percent sand-sized seashell fragments; non-saline; noneffervescent; slightly alkaline; clear smooth boundary.
- C1—9 to 18 inches; brown (10YR 5/3) fine sand, very pale brown (10YR 7/3), dry; single grain; loose; 2 percent very fine and fine roots; 1 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron with sharp boundaries lining pores; 2 percent sand-sized seashell fragments; non-saline; noneffervescent; slightly alkaline; clear smooth boundary.
- C2—18 to 30 inches; pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3), dry; single grain; loose; 2 percent very fine and fine roots; 5 percent fine and medium distinct brownish yellow (10YR 6/6) and 1 percent fine and medium faint



Figure 51.—Profile of Panam fine sand in an area of Mustang-Panam complex, 0 to 2 percent slopes, occasionally flooded. This pedon exhibits masses of oxidized iron at a depth of 2 feet, and evidence of reduced iron at a depth of 3 feet. The oxidation and reduction of iron is caused by a fluctuating water table. (Scale in CM-centimeters, and FT-feet)

light yellowish brown (10YR 6/4) masses of oxidized iron with sharp boundaries lining pores; 5 percent sand-sized seashell fragments; non-saline; noneffervescent; slightly alkaline: clear smooth boundary.

C3—30 to 38 inches; brown (10YR 5/3) fine sand, light brownish gray (10YR 6/2), dry; single grain; loose; 1 percent very fine and fine roots; 1 percent fine and medium distinct light yellowish brown (10YR 6/4) masses of oxidized iron with clear boundaries lining pores; 3 percent medium and coarse faint light brownish gray (10YR 6/2) iron depletions with clear boundaries in matrix; 4 percent sand-sized seashell fragments; non-saline; noneffervescent; slightly alkaline; abrupt smooth boundary.

Cg1—38 to 48 inches; gray (2.5Y 5/1) fine sand, light brownish gray (2.5Y 6/2), dry; single grain; loose; 1 percent very fine and fine roots; 10 percent coarse faint

yellowish brown (10YR 5/4) masses of oxidized iron with clear boundaries in matrix; 4 percent sand-sized seashell fragments; non-saline; noneffervescent; moderately alkaline; clear smooth boundary.

Cg2—48 to 60 inches; gray (5Y 6/1) fine sand, light gray (2.5Y 7/2), dry; single grain; loose; 1 percent fine and medium distinct light yellowish brown (10YR 6/4) masses of oxidized iron with clear boundaries in matrix; 6 percent sand-sized and 1 percent fine and medium seashell fragments; non-saline; noneffervescent; moderately alkaline; clear smooth boundary.

Cg3—60 to 80 inches; gray (5Y 5/1) fine sand, light brownish gray (2.5Y 6/2), dry; single grain; loose; 1 percent fine distinct light yellowish brown (2.5Y 6/4) masses of oxidized iron with clear boundaries in matrix; 6 percent sand-sized and 1 percent fine and medium seashell fragments; non-saline; noneffervescent; moderately alkaline.

Type Location

Kleberg County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties; 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore; 4.5 miles southwest on Park Road 22 to the end of the paved road; 7.0 miles south along the beach to the entrance of Pan Am Road; 0.2 mile northwest on Pan Am Road; 0.6 mile south on Pan Am Road; 50 feet west on a low mound in rangeland. South Bird Island SE, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 18 minutes, 52.1 seconds, North; Longitude: 97 degrees, 20 minutes, 32.9 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime bordering on an Udic soil moisture regime. The soil moisture control section is dry in some or all parts for less than 120 cumulative days in normal years. Although rainfall amounts are that of an Ustic soil moisture regime, the effective precipitation is higher because of relative landscape position and a fluctuating water table. The water table occurs in most pedons at a depth of 30 to 50 inches for at least two months, in most years.

Mean annual soil temperature: 74 to 76 degrees F

Depth to masses of oxidized iron: 0 to 10 inches

Depth to iron depletions: 25 to 40 inches

Depth to endosaturation: 30 to 50 inches for at least two months in most years

Particle-size control section (weighted average):

Clay content: 1 to 4 percent

Sand content: 95 to 99 percent

Coarse seashell fragments: 0 to 4 percent

Other features: The particle-size control section has less than 5 percent silt plus clay.

A horizon

Hue: 10YR

Value: 4 to 6, 5 to 7 dry

Chroma: 2 or 3

Texture: Fine sand

Clay content: 1 to 4 percent

Redox concentrations: Amount—1 to 3 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp; shades—brown or yellow

Coarse seashell fragments: 0 to 1 percent

Sand-size seashell fragments: 0 to 3 percent

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Slightly alkaline to strongly alkaline

C horizon

Hue: 10YR or 2.5Y

Value: 4 to 6, 6 to 8 dry

Chroma: 2 or 3

Texture: Fine sand

Clay content: 1 to 4 percent

Redox concentrations: Amount—1 to 7 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or sharp; shades—brown or yellow

Redox depletions: Amount—0 to 15 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; shades—gray

Coarse seashell fragments: 0 to 10 percent

Sand-size seashell fragments: 1 to 20 percent

EC (dS/m): 0 to 2

SAR: 0 to 8

Reaction: Slightly alkaline to strongly alkaline

Cg horizon

Hue: 10YR, 2.5Y, 5Y, N/, 5GY, 5BG, or 5B

Value: 4 to 6, 5 to 8 dry

Chroma: 0 to 2

Texture: Fine sand

Clay content: 1 to 4 percent

Redox concentrations: Amount—0 to 15 percent; size—fine to coarse; contrast—faint to prominent; boundary—clear or sharp; shades—brown

Redox depletions: Amount—0 to 40 percent; size—fine to coarse; contrast—faint or distinct; boundary—diffuse or clear; shades—gray

Coarse seashell fragments: 0 to 10 percent

Sand-size seashell fragments: 1 to 15 percent

EC (dS/m): 0 to 4

SAR: 0 to 8

Reaction: Slightly alkaline to strongly alkaline

Papagua Series

The Papagua series consists of deep, very poorly drained, slowly permeable soils that formed in sandy and loamy eolian sediments of Holocene age over loamy alluvial sediments of Quaternary age. These nearly level soils are in depressions. The soil is ponded for short periods after heavy rains. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and the mean annual precipitation is about 25 inches.

Taxonomic Class

Fine, mixed, active, hyperthermic Typic Albaqualfs

Typical Pedon

Papagua fine sandy loam, in a depression, rangeland. (Colors are for dry soil unless otherwise stated.)

A—0 to 12 inches; dark grayish brown (10YR 4/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure, hard, friable; common fine roots; few fine pores; neutral; abrupt smooth boundary.

Btg1—12 to 19 inches; dark grayish brown (10YR 4/2) sandy clay, grayish brown (10YR 5/2) dry; moderate medium prismatic structure parting to moderate medium and coarse blocky; extremely hard, firm, slightly sticky; common fine

- roots; common, distinct clay films on faces of peds; common medium distinct brownish yellow (10YR 6/6) and strong brown (7.5YR 5/8) redox concentrations; few black concretions less than 5 mm diameter; neutral; gradual wavy boundary.
- Btg2—19 to 41 inches; grayish brown (10YR 5/2) sandy clay loam, light brownish gray (10YR 6/2) dry; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky; few fine roots; few faint clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) redox concentrations and few fine faint gray (10YR 6/1) redox depletions; few black concretions less than 5 mm diameter; neutral; gradual wavy boundary.
- Btkg—41 to 52 inches; light brownish gray (10YR 6/2) sandy clay loam, light gray (10YR 7/2) dry; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky; few faint clay films on faces of peds; few black concretions less than 3 mm diameter; few fine masses of calcium carbonate; slightly alkaline; gradual wavy boundary.
- Btk—52 to 70 inches; very pale brown (10YR 7/3) sandy clay loam, very pale brown (10YR 8/3) dry; moderate fine subangular blocky structure; hard, firm; common masses and nodules of calcium carbonate; moderately alkaline; gradual smooth boundary.
- Bck—70 to 80 inches; very pale brown (10YR 7/3) sandy clay loam, very pale brown (10YR 8/3) dry; weak fine subangular blocky structure; hard, firm; common fine and medium nodules of calcium carbonate; common fine dark concretions of iron-manganese oxides; moderately alkaline.

Type Location

Brooks County, Texas; 5.5 miles east of Falfurrias on Texas Highway 285, 2.4 miles north and west on Farm Road 2191, and 1,000 feet south in pasture. Premont East, Texas USGS topographic quadrangle; NAD 83; Latitude 27 degrees, 15 minutes, 14 seconds, North; Longitude 98 degrees, 3 minutes, 49 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Mean annual soil temperature: 72 to 74 degrees F

Depth to secondary calcium carbonates: 36 to 50 inches

Particle-size control section (weighted average):

Clay content: 36 to 45 percent

A horizon

Hue: 7.5YR or 10YR

Value: 4 to 6

Chroma: 2 to 3

Texture: Loamy fine sand or fine sandy loam

Effervescence: None

Reaction: Slightly acid or neutral

Btg horizon

Hue: 10YR

Value: 4 to 6

Chroma: 1 to 3

Texture: Sandy clay loam or sandy clay

Redox concentrations: Amount—5 to 30 percent; size—fine or medium; contrast—faint to prominent; boundaries—clear and diffuse; shades—brown or yellow

Redox depletions: Amount—none or few; shades—gray

Effervescence: None

Reaction: Slightly acid to neutral

Btk horizon

Hue: 10YR

Value: 6 to 8

Chroma: 2 or 3

Texture: Sandy clay loam or sandy clay

Redox concentrations: Amount—0 to 30 percent; size—fine or medium; contrast—faint to prominent; boundaries—clear or diffuse; shades—brown or yellow

Identifiable secondary carbonate: Amount—2 to 8 percent; size—fine; kind—masses or nodules; location—throughout

EC (dS/m): 0 to 1

SAR: 0 to 4

Effervescence: Slight to strong

Reaction: Slightly alkaline or moderately alkaline

BCK horizon

Hue: 10YR

Value: 6 to 8

Chroma: 2 or 3

Texture: Sandy clay loam or sandy clay

Redox concentrations: Amount—0 to 20 percent; size—fine or medium; contrast—faint to prominent; boundaries—clear or diffuse; shades—brown or yellow; location—throughout

Identifiable secondary carbonate: Amount—2 to 8 percent; size—fine; kind—masses or nodules; location—throughout

EC (dS/m): 0 to 1

SAR: 0 to 5

Effervescence: Slight to strong

Reaction: Slightly alkaline or moderately alkaline

Point Isabel Taxadjunct

The Point Isabel series consists of very deep, well drained, slowly permeable soils that formed in calcareous loamy and clayey eolian deposits. These soils are on vegetated dunes. Slope ranges from 0 to 15 percent. Mean annual air temperature is about 73 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Fine, mixed, active, hyperthermic Typic Calciustepts

The Point Isabel soils in Kleberg County are a taxadjunct to the series. It has mixed mineralogy instead of smectitic mineralogy, but will interpret the same

Typical Pedon

Point Isabel clay loam, in rangeland. (Colors are for dry soil unless otherwise stated.)

A1—0 to 8 inches; dark grayish brown (10YR 4/2) clay loam, light brownish gray (10YR 6/2) dry; weak, fine granular and subangular blocky structure; slightly hard, friable; strongly effervescent; moderately alkaline; clear smooth boundary.

- A2—8 to 12 inches; very dark grayish brown (10YR 3/2) clay, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; hard, firm; strongly effervescent; moderately alkaline; clear wavy boundary.
- Bkn1—12 to 19 inches; grayish brown (10YR 5/2) clay, light brownish gray (10YR 6/2) dry; moderate coarse prismatic structure parting to moderate fine and medium angular blocky; hard, firm; common films and threads of calcium carbonate; strongly effervescent; moderately alkaline, abrupt wavy boundary.
- Bkn2—19 to 22 inches; very dark grayish brown (10YR 3/2) clay loam, grayish brown (10YR 5/2) dry; moderate coarse prismatic structure parting to moderate fine angular blocky; hard, firm; common films and threads of calcium carbonate; strongly effervescent; moderately alkaline; abrupt wavy boundary.
- Bkn3—22 to 37 inches; grayish brown (10YR 5/2) clay, light brownish gray (10YR 6/2) dry; moderate fine and medium angular blocky structure; hard, firm; few films and threads of calcium carbonate; strongly effervescent; moderately alkaline; abrupt wavy boundary.
- Bknb1—37 to 42 inches; very dark grayish brown (10YR 3/2) clay, gray (10YR 5/1) dry; moderate fine subangular blocky structure; hard, firm; few threads of calcium carbonate; strongly effervescent; moderately alkaline; clear wavy boundary.
- Bknb2—42 to 65 inches; grayish brown (10YR 5/2) clay, light gray (10YR 7/2) dry; moderate fine and medium angular blocky structure; hard, firm; common threads and films of calcium carbonate; strongly effervescent; moderately alkaline.

Type Location

Cameron County, Texas; from the intersection of Texas Highway 4 and Farm Road 511, which is about 0.5 mile northeast of Brownsville International Airport; 7.6 miles east on Texas Highway 4; 0.2 mile north on field road; 250 feet west in rangeland.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime.

Depth to secondary calcium carbonate: 4 to 16 inches

Depth to calcic horizon: 4 to 16 inches

Depth to buried A and B horizons: 18 to 50 inches

A horizon

Hue: 10YR

Value: 4 to 6

Chroma: 2 or 3

Texture: Clay loam, silty clay loam, or clay

EC (dS/m): 1 to 20

SAR: 11 to 62

Effervescence: Slight to strong

Reaction: Moderately alkaline to strongly alkaline

Bk horizon

Hue: 10YR

Value: 5 to 7

Chroma: 1 or 2

Texture: Silty clay loam, clay loam, or clay

Clay content: 35 to 55

Identifiable secondary carbonate: 2 to 10 percent, fine and medium, films, threads, and filaments in matrix

Identifiable salts: 2 to 7 percent, fine masses, in matrix

EC (dS/m): 4 to 40

SAR: 72 to 95

Effervescence: Slight to violent

Reaction: Moderately alkaline to strongly alkaline

Portalto Taxadjunct

The Portalto series consists of very deep, moderately rapidly permeable, moderately well drained soils that have formed in sandy and loamy sediments of Quaternary age. These nearly level to moderately sloping soils are on mounds and ridges on strand plains. Slopes range from 0 to 5 percent. The mean annual air temperature is 72 degrees F, and the mean annual precipitation is about 40 inches.

Taxonomic Class

Siliceous, hyperthermic OxyAquic Haplustalfs

The Portalto soils in the survey area are a taxadjunct to the series. It classifies as siliceous, hyperthermic OxyAquic Haplustalfs instead of loamy, siliceous, active, hyperthermic Grossarenic Paleudalfs. These soils will interpret the same.

Typical Pedon

Portalto fine sand, rangeland. (Colors are for moist soil unless otherwise stated.)

- A—0 to 8 inches; dark gray (10YR 4/1) fine sand, gray (10YR 6/1) dry; single grain; loose; many fine and medium roots; moderately acid; clear smooth boundary.
- E1—8 to 35 inches; light gray (10YR 7/2) fine sand, very pale brown (10YR 8/2) dry; single grain; loose; common fine and medium roots; moderately acid; gradual smooth boundary.
- E2—35 to 58 inches; light brownish gray (10YR 6/2) fine sand, light gray (10YR 7/2) dry; single grain; loose; few fine roots; moderately acid; clear smooth boundary.
- Btg1—58 to 64 inches; dark grayish brown (10YR 4/2) fine sandy loam, grayish brown (10YR 5/2) dry; massive; slightly hard, very friable; few fine roots; moderately acid; clear smooth boundary.
- Btg2—64 to 67 inches; grayish brown (10YR 5/2) sandy clay loam, light brownish gray (10YR 6/2) dry; weak coarse blocky structure; slightly hard, friable; few fine roots; few fine pores; few clay bridges and films; 15 percent coarse and medium distinct yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) masses of oxidized iron in matrix; 3 percent medium faint very pale brown (10YR 7/4) masses of oxidized iron in matrix; moderately acid; gradual smooth boundary.
- Btg3—67 to 80 inches; gray (10YR 6/1) fine sandy loam, light gray (10YR 7/1) dry; weak coarse subangular blocky structure; slightly hard, very friable; few fine roots; few fine pores; 25 percent coarse and medium distinct brownish yellow (10YR 6/6), yellow (10YR 7/6), and strong brown (7.5YR 5/6) masses of oxidized iron in matrix; slightly acid; gradual smooth boundary.

Type Location

Calhoun County, Texas; 11.2 miles east of Seadrift 0.3 mile east of intersection of Texas Highway 185 and Farm Road 1289; 110 feet south of right-of-way fence on mound in rangeland.

Range in Characteristics

Soil moisture: An Udic soil moisture regime bordering on an Ustic soil moisture regime.

A horizon

Hue: 10YR

Value: 4 to 8

Chroma: 1 or 2

Texture: Fine sand or loamy fine sand

Reaction: Moderately acid or slightly acid

E horizon

Hue: 10YR

Value: 5 to 8

Chroma: 1 to 2

Texture: Fine sand or loamy fine sand

Reaction: Moderately acid or slightly acid

Btg horizon

Hue: 10YR

Value: 4 to 7

Chroma: 1 or 2

Texture: Fine sandy loam or sandy clay loam

Redox concentrations: Amount—20 to 30 percent; size—coarse; location—throughout; shades—brown or yellow

Reaction: Moderately acid or slightly acid

Cg horizon (where present)

Hue: 10YR

Value: 5 to 7

Chroma: 1 to 2

Texture: Loamy fine sand, fine sandy loam, or sandy clay loam

Reaction: Neutral to moderately alkaline

Potrero Series

The Potrero series consists of very deep, somewhat poorly drained, rapidly permeable soils deposits on convex linear mounds in deflation flats of active and recently active dune complexes. These nearly level to gently sloping soils formed in sandy eolian sediments of Holocene age overlying loamy eolian deposits of Pleistocene age. Slope ranges from 0 to 3 percent. Mean annual temperature is about 73 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Mixed, hyperthermic Aquic Ustipsamments

Typical Pedon

Potrero fine sand, in an area of Potrero-Lopeno-Noria complex, 0 to 5 percent slopes, in rangeland at an elevation of 13 feet. (Colors are for moist soil unless otherwise stated.) (fig. 52)

A—0 to 8 inches; brown (10YR 4/3) fine sand, brown (10YR 5/3) dry; single grain; loose; 5 percent fine and medium roots; 2 percent fine faint yellowish brown (10YR 5/6) masses of oxidized iron with sharp boundaries lining pores; non-saline; slightly acid; gradual smooth boundary.

C1—8 to 21 inches; pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; 4 percent fine and medium roots; 3 percent fine pores; 2 percent fine faint yellowish brown (10YR 5/6) masses of oxidized iron with sharp boundaries lining pores; faint thin bedding planes; non-saline; slightly acid; gradual smooth boundary.



Figure 52.—Profile of Portrero fine sand, in an area of Potrero-Lopeno-Noria complex, 0 to 5 percent slopes. A buried gleyed soil begins at a depth of about 3 feet. A water table is present at a depth of 3 feet. (Scale in D-decimeters, and FT-feet)

- C2—21 to 32 inches; pale brown (10YR 6/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose; 4 percent fine and medium roots; 3 percent fine pores; 2 percent fine faint brownish yellow (10YR 6/6) masses of oxidized iron with sharp boundaries lining pores; 2 percent fine faint light brownish gray (10YR 6/2) iron depletions with diffuse boundaries in the matrix; faint thin bedding planes; non-saline; slightly acid; abrupt smooth boundary.
- Agb—32 to 39 inches; dark gray (5Y 4/1) loamy fine sand, gray (5Y 5/1) dry; weak medium subangular blocky structure; slightly hard, friable; 3 percent fine roots; 2 percent fine pores; 7 percent medium distinct olive (5Y 5/4) masses of oxidized iron with sharp boundaries lining pores; non-saline; slightly acid; clear wavy boundary.
- Bgb1—39 to 45 inches; light olive gray (5Y 6/2) loamy fine sand, light gray (5Y 7/2) dry; weak medium subangular blocky structure; slightly hard, friable; 3 percent fine roots; 2 percent fine pores; 7 percent medium olive yellow (2.5Y 6/6) masses of oxidized iron with sharp boundaries lining pores; 7 percent coarse prominent greenish gray (5GY 5/1) iron depletions with diffuse boundaries in the matrix; non-saline; neutral; gradual smooth boundary.
- Bgb2—45 to 53 inches; gray (5Y 5/1) fine sandy loam, gray (5Y 6/1) dry; weak coarse subangular blocky structure; slightly hard, friable; 2 percent fine roots; 2 percent fine pores; 7 percent coarse distinct pale olive (5Y 6/3) and 15 percent

coarse prominent yellowish brown (10YR 5/8) masses of oxidized iron with sharp boundaries lining pores; non-saline; noneffervescent; slightly alkaline; gradual smooth boundary.

Bgb3—53 to 71 inches; gray (5Y 6/1) fine sandy loam, light gray (5Y 7/1) dry; weak very coarse prismatic structure parting to weak coarse subangular blocky; slightly hard, friable; 2 percent fine and medium roots; 2 percent fine pores; 7 percent medium distinct olive yellow (2.5Y 6/6) masses of oxidized iron with sharp boundaries lining pores; 7 percent coarse faint greenish gray (5G 5/1) iron depletions with diffuse boundaries in the matrix; 2 percent fine iron-manganese masses; non-saline; neutral, gradual smooth boundary.

Bgb4—71 to 80 inches; light olive gray (5Y 6/2) fine sandy loam, light gray (5Y 7/2) dry; weak very coarse prismatic structure parting to weak coarse subangular blocky; slightly hard, friable; 2 percent very fine and fine roots; 2 percent fine pores; 15 percent fine and medium prominent olive yellow (2.5Y 6/6) masses of oxidized iron with sharp boundaries lining pores; 15 percent medium distinct greenish gray (10GY 6/1) iron depletions with diffuse boundaries in the matrix; 2 percent fine iron-manganese masses; non-saline; neutral.

Type Location

Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Avenue in Sarita; 13 miles south on U.S. Highway 77; 15.9 miles east on ranch road; 2.3 miles east on ranch road; 1.4 miles northwest and west on ranch road; 320 feet northwest in rangeland. La Parra Ranch Southeast, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 1 minute, 42.5 seconds, North; Longitude: 97 degrees, 34 minutes, 12.2 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90, but less than 150 cumulative days in normal years. The soil moisture control section is also either moist in some or all parts for 180 cumulative days or more, or moist for 90 or more consecutive days in normal years. A water table occurs at a depth of 12 to 36 inches for at least two months in most years. November through April are the driest months, with a second dry period in July. September is the wettest month.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 0 to 20 inches

Depth to iron depletions or depleted matrix: 24 to 39 inches

Depth to endosaturation: 12 to 36 inches for at least two months in normal years

A horizon

Hue: 10YR

Value: 4 or 5, 5 or 6 dry

Chroma: 2 or 3

Texture: Fine sand

Clay content: 1 to 7 percent

Redox concentrations: Amount—0 to 5 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or sharp; shades—brown

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Slightly acid to moderately alkaline

C horizon

Hue: 10YR

Value: 5 or 6, 6 or 7 dry

Chroma: 2 or 3

Texture: Fine sand

Clay content: 1 to 7 percent

Redox concentrations: Amount—2 to 10 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or sharp; shades—brown or yellow

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Slightly acid to moderately alkaline

Agb or Ab horizon

Hue: 10YR to 5Y

Value: 3 to 5, 5 to 7 dry

Chroma: 1 or 2

Texture: Loamy fine sand, fine sandy loam

Clay content: 10 to 18 percent

Redox concentrations: Amount—0 to 8 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse to sharp; shades—olive

Redox depletions: Amount—2 to 8 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear; location—in the matrix; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 6

Reaction: Slightly acid to strongly alkaline

Bgb horizon

Hue: 10YR to 5Y

Value: 4 to 7, 5 to 8 dry

Chroma: 1 or 2

Texture: Loamy fine sand, fine sandy loam, or sandy clay loam

Clay content: 10 to 24 percent

Redox concentrations: Amount—2 to 20 percent; size—fine to coarse; contrast—faint to prominent; boundary—diffuse to sharp; shades—brown, yellow, or olive

Redox depletions: Amount—2 to 10 percent; size—fine to coarse; contrast—faint or distinct; boundary—diffuse or clear; location—in the matrix; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 6

Reaction: Slightly acid to strongly alkaline

Premont Series

The Premont series consists of very deep, moderately permeable, well drained soils that have formed in loamy sediments over calcareous loamy alluvium of Quaternary age. These nearly level to gently sloping soils are on crests on paleoterraces. Slope ranges from 0 to 3 percent. The mean annual temperature is about 72 degrees F, and the mean annual precipitation is about 26 inches.

Taxonomic Class

Fine-loamy, mixed, superactive, hyperthermic Typic Haplustalfs

Typical Pedon

Premont fine sandy loam, on northeast facing, convex, 1 percent slope in cropland at an elevation of 275 feet. (Colors are for dry soil unless otherwise stated.)

- Ap—0 to 8 inches; brown (10YR 4/3) fine sandy loam, brown (10YR 5/3) dry; weak fine granular structure; hard, friable; few very fine and few medium roots; few fine and medium tubular pores; slightly acid; abrupt wavy boundary.
- Bt1—8 to 16 inches; dark brown (7.5YR 3/3) sandy clay loam, brown (7.5YR 4/3) dry; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, firm; common fine and few medium roots; common fine and few medium tubular pores; 30 percent distinct brown clay films on faces of peds; neutral; clear smooth boundary.
- Bt2—16 to 22 inches; dark brown (7.5YR 3/3) sandy clay loam, brown (7.5YR 4/3) dry; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, firm; few very fine and fine roots; few fine and medium tubular pores; 30 percent distinct brown clay films on faces of peds; neutral; abrupt wavy boundary.
- Bt3—22 to 34 inches; brown (7.5YR 4/4) sandy clay loam, brown (7.5YR 5/4) dry; strong coarse prismatic structure; very hard, very firm; common fine roots and few medium roots; few fine and few medium tubular pores; 30 percent distinct clay films on faces of peds; noneffervescent; moderately alkaline; clear wavy boundary.
- Btk—34 to 37 inches; strong brown (7.5YR 4/6) sandy clay loam, strong brown (7.5YR 5/6) dry; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, very firm; few very fine pores; few fine tubular pores; 20 percent distinct brown clay films on faces of peds; 2 percent fine prominent threads of extremely weakly cemented white (7.5YR 8/1) calcium carbonate masses with sharp boundaries in matrix and 1 percent fine prominent spherical extremely weakly cemented white (7.5YR 8/1) calcium carbonate masses with sharp boundaries in matrix; strongly effervescent; strongly alkaline; abrupt wavy boundary.
- 2Btk1—37 to 49 inches; strong brown (7.5YR 4/6) sandy clay loam, strong brown (7.5YR 5/6) dry; moderate medium subangular blocky structure; very hard, very firm; few fine roots; few fine and medium tubular pores; 5 percent faint pale brown clay films on surfaces along pores; 1 percent fine black (7.5YR 2.5/1) iron-manganese nodules; 14 percent fine prominent irregular extremely weakly cemented white (7.5YR 8/1) calcium carbonate masses with sharp boundaries in matrix and 20 percent medium prominent spherical moderately cemented white (7.5YR 8/1) calcium carbonate nodules with sharp boundaries between peds; violently effervescent; strongly alkaline; clear wavy boundary.
- 2Btk2—49 to 60 inches; reddish yellow (7.5YR 6/6) sandy clay loam, reddish yellow (7.5YR 7/6) dry; weak medium subangular blocky structure; hard, firm; few very fine and fine tubular pores; 3 percent faint light yellowish brown clay films on surfaces along pores; 5 percent very dark grayish brown (10YR 3/2) insect casts between peds; 35 percent coarse prominent irregular extremely weakly cemented white (7.5YR 8/1) calcium carbonate nodules with sharp boundaries throughout and 10 percent medium prominent irregular non-emented white (7.5YR 8/1) calcium carbonate masses with sharp boundaries between peds; violently effervescent; strongly alkaline; gradual smooth boundary.
- 2Bk—60 to 80 inches; reddish yellow (7.5YR 6/6) sandy clay loam, reddish yellow (7.5YR 8/6) dry; weak medium subangular blocky structure; hard, firm; few fine tubular pores; 5 percent finely disseminated weakly cemented white (7.5YR 8/1) calcium carbonate masses with diffuse boundaries throughout and 30 percent medium prominent spherical non-emented white (7.5YR 8/1) calcium carbonate masses with sharp boundaries between peds; violently effervescent; strongly alkaline.

Type Location

Duval County, Texas; from the intersection of Texas Highway 44 and FM 359 in San Diego; 1.15 south on FM 359 to FM 1329; 14.1 miles south on FM 1329 to ranch road; 1.57 miles west on ranch road; 200 feet south in cropland. San Jose, Texas USGS topographic quadrangle; NAD 83; Latitude, 27 degrees, 32 minutes, 39.5 seconds, North; Longitude, 98 degrees, 17 minutes, 33.8 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Mean annual soil temperature: 72 to 74 degrees F

Depth to secondary calcium carbonates: 29 to 60 inches.

Other features: Some pedons have mollic colors but do not have enough organic carbon to meet the requirements for a mollic epipedon.

Particle-size control section (weighted average):

Clay content: 17 to 32 percent

A horizon

Hue: 10YR

Value: 4 or 5

Chroma: 2 or 3

Texture: Loamy fine sand or fine sandy loam

Clay content: 7 to 16 percent

EC: 0 to 2

SAR: 0 to 6

Effervescence: None

Reaction: Strongly acid to neutral

Bt horizon

Hue: 7.5YR or 10YR

Value: 3 to 6

Chroma: 2 to 4

Texture: Fine sandy loam or sandy clay loam

Clay content: 17 to 32 percent

Clay films: Amount—10 to 30 percent; location—along faces of peds; contrast—faint or distinct

EC: 0 to 2

SAR: 0 to 6

Effervescence: Noneffervescent to slight

Reaction: Slightly acid to moderately alkaline

Btk horizon

Hue: 7.5YR or 10YR

Value: 3 to 6

Chroma: 3 to 6

Texture: Sandy clay loam

Clay content: 20 to 32 percent

Clay films: Amount—10 to 25 percent; location—along faces of peds; contrast—faint or distinct

EC: 0 to 2

SAR: 0 to 6
Effervescence: Slight to strong
Reaction: Neutral to strongly alkaline

2Btk horizon

Hue: 7.5YR or 10YR
Value: 4 to 7
Chroma: 3 to 6
Texture: Sandy clay loam
Clay content: 20 to 26 percent
Clay films: Amount—3 to 10 percent; location—on surfaces along pores; contrast—faint
Identifiable secondary carbonates: Amount—5 to 45 percent; size—fine to coarse; kind—
threads, masses, or nodules; location—infused in matrix and along faces of peds
EC: 0 to 2
SAR: 0 to 4
Effervescence: Slight to violent
Reaction: Slightly alkaline to strongly alkaline

2Bk horizon

Hue: 7.5YR or 10YR
Value: 4 to 8
Chroma: 3 to 6
Texture: Sandy clay loam
Clay content: 20 to 26 percent
Identifiable secondary carbonates: Amount—5 to 45 percent; size—fine to coarse;
kind—threads, masses, or nodules; location—infused in matrix and along faces of
peds
EC: 0 to 2
SAR: 0 to 4
Effervescence: Slight to violent
Reaction: Slightly alkaline to strongly alkaline

Quiteria Series

The Quiteria series consists of very deep, moderately well drained, moderately slowly permeable soils that formed in sandy eolian deposits over loamy Pleistocene age alluvium. These nearly level soils are on the vegetated sand sheet of the South Texas Coastal Plain. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 26 inches.

Taxonomic Class

Coarse-loamy, mixed, active, hyperthermic Typic Natrustalfs

Typical Pedon

Quiteria fine sand, nearly level slopes in rangeland at an elevation of 76 feet. (Colors are for dry soil unless otherwise stated.) (fig. 53)

- A1—0 to 5 inches; brown (10YR 4/3) fine sand, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure; loose, friable; common fine and very roots; few insect tunnels and root channels; moderately acid; clear smooth boundary.
- A2—5 to 15 inches; brown (10YR 4/3) fine sand, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure; loose, very friable; common very fine and fine roots; few fine root channels; moderately acid; abrupt smooth boundary.



Figure 53.—Profile of Quiteria fine sand, in an area of Quiteria fine sand, 0 to 1 percent slopes. A natric horizon starts at about a depth of 1 foot. (Scale in CM-centimeters, and FT-feet)

- 2Btn1—15 to 18 inches; brown (10YR 4/3) fine sandy loam, brown (10YR 5/3) dry; moderate coarse prismatic structure parting to moderate medium blocky; very hard, firm; few very fine and fine roots; few very fine pores; few faint clay films on faces of peds; clean sand grains and organic coatings on faces of peds; few fine distinct yellowish brown (10YR 5/4) redox concentrations and light gray (10YR 7/2) redox depletions; neutral; clear smooth boundary.
- 2Btn2—18 to 22 inches; grayish brown (10YR 5/2) fine sandy loam, light brownish gray (10YR 6/2) dry; strong coarse prismatic structure parting to moderate medium blocky; extremely hard, very firm; few very fine and fine roots; few faint clay films on faces of peds; clean sand grains and organic coatings on faces of peds; many medium distinct yellow (10YR 7/6) and few fine distinct brownish yellow (10YR 6/8) redox concentrations; slightly alkaline; clear smooth boundary.
- 2Btn3—22 to 31 inches; brownish yellow (10YR 6/6) sandy clay loam, yellow (10YR 7/6) dry; moderate coarse prismatic structure parting to moderate medium blocky; very hard, firm; few very fine and fine roots; few faint clay films on faces of peds; clean sand grains on faces of peds; few fine root channels; moderately alkaline; gradual smooth boundary.
- 2Btn4—31 to 43 inches; pale brown (10YR 6/3) sandy clay loam, very pale brown (10YR 7/3) dry; moderate coarse prismatic structure parting to moderate medium blocky; very hard, firm; few very fine and fine roots; few faint clay films on faces of

pedes; few fine distinct brownish yellow (10YR 6/8), reddish yellow (7.5YR 6/6) and reddish yellow (5YR 6/8) redox concentrations; few fine black iron-manganese masses and concretions; few calcareous nodules up to 1 cm diameter; strongly alkaline; gradual smooth boundary.

2B_{tn}5—43 to 59 inches; light gray (10YR 7/2) sandy clay loam, very pale brown (10YR 8/2) dry; weak coarse prismatic structure parting to moderate medium blocky; very hard, firm; few fine roots; few faint clay films on faces of pedes; few medium distinct reddish yellow (7.5YR 7/6) redox concentrations; few fine black iron-manganese masses and concretions; few calcareous nodules up to 1 cm diameter; strongly alkaline; gradual smooth boundary.

2BC_{kn}—59 to 80 inches; light gray (2.5Y 7/2) fine sandy loam, pale yellow (2.5Y 8/2) dry; weak moderate subangular blocky structure; very hard, firm; few calcareous nodules up to 1 cm diameter; strongly alkaline.

Type Location

Brooks County, Texas; from post office in Encino; 0.6 mile north on U.S. Highway 281 to entrance gate of the Encino Division of the King Ranch; 5.7 miles east on ranch road to ranch road; 3.6 miles south on ranch road; 155 feet east in rangeland. San Tomas Camp, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 54 minutes, 23 seconds, North; Longitude: 98 degrees, 03 minutes, 04 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. Precipitation pattern is moist during spring and fall months and dry during summer and winter months. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Lithological discontinuities: One or more lithological discontinuities occur in the B_{tn} horizon.

A horizon

Hue: 10YR

Value: 6 or 7

Chroma: 3 or 4

Texture: Fine sand or loamy fine sand

Reaction: Moderately acid to neutral

2B_{tn} horizon

Hue: 7.5YR or 10YR

Value: 5 to 8

Chroma: 2 to 6

Texture: Loamy fine sand, fine sandy loam, or sandy clay loam. Sandy clay loam layers are less than 12 inches thick

Clay content: 8 to 18 percent in the upper 20 inches

Redox concentrations: Amount—none to many; shades—red, brown, or yellow

Redox depletions: Amount—none to many; shades—gray

Secondary calcium carbonate: Amount—none or few; kind—masses or nodules

ESP: 15 percent and increases with depth

SAR: 20 to 36

EC (dS/m): 2 to 15

Reaction: Neutral to strongly alkaline

2BCkn horizon

Hue: 10YR or 2.5Y

Value: 7 or 8

Chroma: 2 to 4

Texture: Loamy fine sand, fine sandy loam, or sandy clay loam

Redox concentrations: Amount—none to common; shades—yellow

Secondary calcium carbonate: Amount—none or few; kind—masses or nodules

SAR: 20 to 36

EC (dS/m): 2 to 15

Reaction: Moderately alkaline or strongly alkaline

Ramita Series

The Ramita series consists of very deep, poorly drained, moderately slowly permeable soils. These nearly level to gently sloping soils formed in sandy eolian deposits over loamy quaternary alluvium on the Sand Sheet Prairie of the South Texas Coastal Plain. Slope ranges from 0 to 2 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 26 inches.

Taxonomic Class

Fine-loamy, mixed, active, hyperthermic Typic Natraqualfs

Typical Pedon

Ramita fine sand, on a southeast facing, 1 percent slope in rangeland at an elevation of 17 feet. (Colors are for dry soil unless otherwise stated.) (fig. 54)

A1—0 to 4 inches; dark grayish brown (10YR 4/2) fine sand, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure parting to weak fine granular; soft, very friable; 5 percent very fine and fine roots; 2 percent very fine and fine pores; strongly acid; clear smooth boundary.

A2—4 to 11 inches; dark grayish brown (10YR 4/2) fine sand, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure parting to weak fine granular; soft, very friable; 5 percent very fine and fine roots; 2 percent very fine and fine pores; 2 percent fine faint dark yellowish brown (10YR 4/4) masses of oxidized iron; moderately acid; clear smooth boundary.

E—11 to 15 inches; grayish brown (10YR 5/2) fine sand, gray (10YR 6/1) dry; weak fine subangular blocky structure parting to weak fine granular; soft, very friable; 4 percent very fine and fine roots; 5 percent very fine and fine pores; 3 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron along pore linings and roots; moderately acid; very abrupt smooth boundary.

Btn1—15 to 22 inches; very dark grayish brown (10YR 3/2) fine sandy loam, grayish brown (10YR 5/2) dry; strong coarse columnar structure parting to moderate fine and medium angular blocky; extremely hard, firm; 4 percent very fine and fine roots; 5 percent very fine and fine pores; 4 percent fine faint clay films on surfaces of peds; common fine very dark grayish brown (10YR 3/2) organic stains on surfaces of peds and pore linings; 7 percent fine distinct dark yellowish brown (10YR 4/4) and 4 percent faint yellowish brown (10YR 5/4) masses of oxidized iron along ped surfaces and root channels; moderately sodic; neutral; clear smooth boundary.

Btn2—22 to 30 inches; dark grayish brown (2.5Y 4/2) sandy clay loam, grayish brown (2.5Y 5/2) dry; strong coarse prismatic structure parting to moderate fine and medium angular blocky; very hard, firm; 5 percent very fine and fine roots; 4 percent very fine and fine pores; 5 percent fine distinct clay films on surfaces of

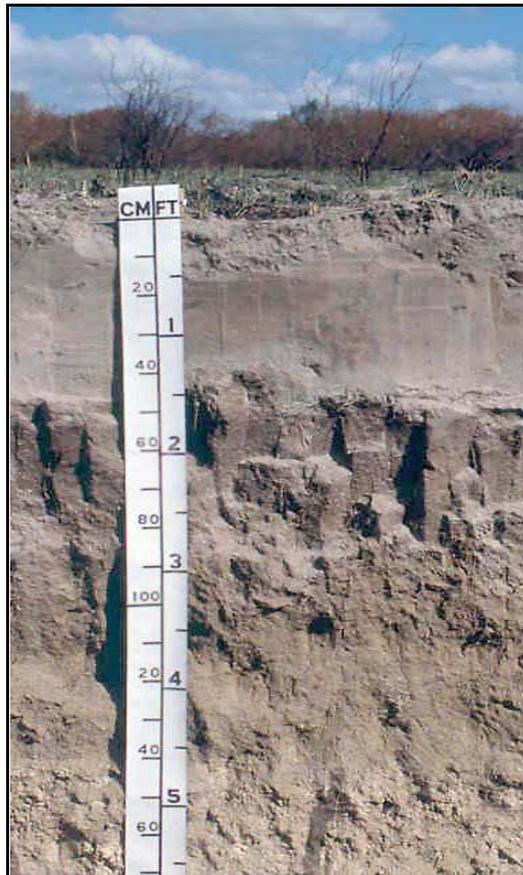


Figure 54.—Profile of Ramita loamy fine sand, in an area of Ramita loamy fine sand, 0 to 2 percent slopes. Coarse columnar and prismatic structure is common in soils with high sodium content. A natric horizon begins at a depth of about 1.5 feet. (Scale in CM-centimeters, and FT-feet)

pedes; common fine dark grayish brown (10YR 4/2) organic stains; 4 percent fine and medium iron-manganese masses and concretions; 1 percent fine calcium carbonate nodules; 7 percent fine and medium distinct yellowish brown (10YR 5/6) and 4 percent fine prominent strong brown (7.5YR 4/6) masses of oxidized iron; strongly sodic; moderately alkaline; clear smooth boundary.

Btn3—30 to 44 inches; grayish brown (2.5Y 5/2) sandy clay loam, light brownish gray (2.5Y 6/2) dry; moderate coarse prismatic structure parting to moderate fine and medium angular blocky; very hard, firm; 5 percent very fine and fine roots; 5 percent very fine and fine pores; 5 percent fine distinct clay films on surfaces of peds; 7 percent fine and medium iron-manganese concretions and masses; 2 percent fine calcium carbonate nodules; 7 percent fine and medium distinct yellowish brown (10YR 5/6) and 3 percent fine prominent strong brown (7.5YR 5/8) masses of oxidized iron; moderately saline; strongly sodic; moderately alkaline; clear smooth boundary.

Bt_{ny}—44 to 55 inches; light yellowish brown (2.5Y 6/3) sandy clay loam, pale yellow (2.5Y 7/3) dry; weak coarse prismatic structure parting to weak fine and medium angular blocky; hard, friable; 5 percent fine faint clay films on surfaces of peds; 4 percent fine iron-manganese concentrations; 2 percent fine calcium carbonate nodules and masses; 3 percent fine gypsum crystals; 8 percent fine and medium prominent yellowish brown (10YR 5/8) and yellowish brown (10YR 5/4) masses of

oxidized iron; strongly saline; strongly sodic; moderately alkaline; clear smooth boundary.

2Btkny1—55 to 68 inches; light gray (5Y 7/2) sandy clay loam, pale yellow (5Y 8/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable; 4 percent very fine roots; 5 percent very fine and fine pores; 5 percent fine faint clay films; 12 percent fine and medium calcium carbonate nodules and masses; 4 percent fine gypsum crystals; 7 percent fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; strongly saline; strongly sodic; moderately alkaline; gradual smooth boundary.

2Btkny2—68 to 80 inches; pale yellow (5Y 8/2) sandy clay loam, pale yellow (5Y 8/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable; 3 percent very fine and fine roots; 5 percent very fine and fine pores; 3 percent fine faint clay films; 10 percent medium calcium carbonate nodules and masses; 2 percent fine gypsum crystals; 2 percent fine prominent olive (5Y 5/6) masses of oxidized iron; strongly saline; strongly sodic; moderately alkaline.

Type Location

Kenedy County, Texas; from the intersection of La Parra Avenue and U.S. Highway 77 in Sarita; 30.15 miles south on U.S. Highway 77 to the ranch gate of the Norias Division of the King Ranch; 3.25 miles east on paved ranch road to ranch road; 1,900 feet north on ranch road along fence line to trail; 750 feet west along trail; 100 feet north in rangeland. Saltillo Well, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 47 minutes, 27.2 seconds, North; Longitude: 97 degrees, 43 minutes, 52.4 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime bordering on an Udic soil moisture regime. The soil moisture control section is dry in some or all parts for less than 120 cumulative days in normal years. November through April are the driest months, with a second low in July, while September is the wettest. Although rainfall amounts are that of an Ustic soil moisture regime, the effective precipitation is higher because the soil is in a water receiving position. A water table is present in most pedons at depths of 12 to 36 inches in most years from November through April. This is because of reduced evapotranspiration levels and the lateral flow of water through the soil after the heaviest rainfall month of September.

Depth to natric horizon: 4 to 18 inches

Depth to secondary calcium carbonate: 30 to more than 80 inches

Depth to redox concentrations: 4 to 18 inches

Depth to redox depletions or reduced matrix: 4 to 35 inches

Depth to episaturation: 12 to 36 inches, in most years, from November to April

Particle-size control section (weighted average):

Clay content: 18 to 28 percent

Sand content: 65 to 74 percent

CEC/clay ratio: 0.40 to 0.60

A horizon

Hue: 10YR

Value: 4 to 6

Chroma: 2 or 3

Texture: Fine sand or loamy fine sand

Clay content: 2 to 10 percent

Redox concentrations: Amount—none to common; size—fine; contrast—faint or distinct; boundary—clear or distinct; shades—brown

EC (dS/m): 0 to 2

SAR: 3 to 10

Reaction: Strongly acid to neutral

E horizon

Hue: 10YR

Value: 5 to 7

Chroma: 1 to 3

Texture: Fine sand or loamy fine sand

Clay content: 2 to 10 percent

Redox concentrations: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundary—clear or distinct; shades—brown

EC (dS/m): 0 to 2

SAR: 3 to 10

Reaction: Moderately acid to neutral

Other features: Some pedons do not have E horizons.

Btn1 horizon

Hue: 10YR or 2.5Y

Value: 3 to 6

Chroma: 1 or 2

Texture: Fine sandy loam or sandy clay loam

Clay content: 16 to 25 percent

Redox concentrations: Amount—few to many; size—fine or medium; contrast—faint to prominent; boundary—clear or distinct; shades—brown

Redox depletions: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundary—clear or distinct; shades—gray

EC (dS/m): 0 to 4

SAR: 6 to 23

Reaction: Neutral to moderately alkaline

Btn2 horizon

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 1 or 2

Texture: Sandy clay loam

Clay content: 20 to 28 percent

Redox concentrations: Amount—few to many; size—fine or medium; contrast—faint to prominent; boundary—clear or distinct; shades—brown

Redox depletions: Amount—none to common; size—fine or medium; contrast—faint; boundary—clear or distinct; shades—gray

EC (dS/m): 0 to 8

SAR: 13 to 35

Reaction: Neutral to strongly alkaline

Lower Btn horizon

Hue: 10YR to 5Y

Value: 6 to 8

Chroma: 1 to 3

Texture: Sandy clay loam

Clay content: 20 to 28 percent

Redox concentrations: Amount—few to many; size—fine or medium; contrast—faint to prominent; boundary—clear or distinct; shades—brown

Redox depletions: Amount—none to many; size—fine or medium; boundary—faint or distinct; shades—gray

Calcium carbonate: Amount—few to many; kind—masses or nodules

Gypsum: Amount—few to many; kind—crystals

EC (dS/m): 4 to 10

SAR: 13 to 56

Reaction: Slightly alkaline to strongly alkaline

2Btkn or 2Btkny horizon

Hue: 10YR to 5Y

Value: 6 to 8

Chroma: 2 or 3

Texture: Sandy clay loam

Clay content: 20 to 35 percent

Redox concentrations: Amount—few to many; size—fine or medium; contrast—faint to prominent; boundary—clear or distinct; shades—brown or olive

Redox depletions: Amount—none to common; size—fine or medium; contrast—faint or distinct; boundary—clear or distinct; shades—gray

Calcium carbonate: Amount—few to many; kind—masses or nodules

Gypsum: Amount—few to many; kind—crystals

Other salts: Amount—few to many; kind—crystals

EC (dS/m): 8 to 20

SAR: 30 to 60

Reaction: Slightly alkaline to strongly alkaline

Rockport Series

The Rockport series consists of very deep, somewhat excessively drained, rapidly permeable soils that formed in eolian sands on the Pleistocene-age Ingleside Strandplain. These nearly level or very gently sloping soils are on broad flats and low mounds. Slopes range from 0 to 2 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 31 inches.

Taxonomic Class

Hyperthermic, coated OxyAqic Quartzipsamments

Typical Pedon

Rockport fine sand, in an area of Rockport fine sand, 0 to 2 percent slopes, on a southwest facing, 1.5 percent slope in rangeland; elevation is about 19 feet. (Colors are for dry soil unless otherwise stated.)

A1—0 to 4 inches; dark grayish brown (10YR 4/2) fine sand, grayish brown (10YR 5/2) dry; weak fine granular structure parting to single grain; loose; 7 percent very fine and fine and 3 percent medium and coarse roots; 1 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron with clear boundaries along root pore linings; moderately acid; clear smooth boundary.

A2—4 to 18 inches; grayish brown (10YR 5/2) fine sand, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure parting to single grain; loose; 5 percent very fine and fine and 3 percent medium and coarse roots; 2 percent fine and medium distinct yellowish brown (10YR 5/4) masses of oxidized iron with clear boundaries along root pore linings; strongly acid; clear smooth boundary.

C—18 to 37 inches; light brownish gray (10YR 6/2) fine sand, light gray (10YR 7/2) dry; single grain; loose; 4 percent very fine, fine, and medium roots; 3 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron with

clear boundaries along root pore linings; moderately acid; gradual smooth boundary.

Cg1—37 to 59 inches; light gray (10YR 7/2) fine sand, very pale brown (10YR 8/2) dry; single grain; loose; 3 percent very fine and fine roots; 3 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron with clear boundaries along root pore linings; slightly acid; gradual smooth boundary.

Cg2—59 to 70 inches; light gray (10YR 7/2) fine sand, very pale brown (10YR 8/2) dry; single grain; loose; 1 percent very fine and fine roots; moderately acid; gradual smooth boundary.

Cg3—70 to 80 inches; light gray (10YR 7/2) fine sand, very pale brown (10YR 8/2) dry; single grain; loose; 1 percent very fine and fine roots; 3 percent fine and medium distinct yellowish brown (10YR 5/4) masses of oxidized iron with clear boundaries along root pore linings; moderately acid.

Type Location

Kleberg County, Texas; from the intersection of U.S. Highway 77 and Farm Road 70 (2.63 miles northeast of Kingsville) in Bishop; 20.9 miles generally east on Farm Road 70; 2.0 miles east on county road; 6.28 miles generally east on paved ranch road; 4.0 miles south-southwest on ranch road; 0.75 mile west-northwest on ranch road; 120 feet north in rangeland. Pita Island, Texas USGS quadrangle; NAD 83; Latitude, 27 degrees, 31 minutes, 35.0 seconds, North; Longitude, 97 degrees, 21 minutes, 18.2 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime bordering on an Udic soil moisture regime. The soil moisture control section is dry in some or all parts for less than 120 cumulative days in normal years. November through April are the driest months, with a second dry period in July, while September is the wettest month. Although rainfall amounts are that of an Ustic soil moisture regime, the effective precipitation is higher because of relative landscape position and a fluctuating water table. A water table is present in most pedons within 40 inches of the surface in most years for 20 or more consecutive days, or 30 or more cumulative days.

Mean annual soil temperature: 71 to 73 degrees F

Depth to redox concentrations: 0 to 10 inches

Depth to redox depletions: 40 to 80 inches

Depth to endosaturation: 25 to 40 inches in most years for a period of two months

Particle-size control section (weighted average):

Clay content: 1 to 5 percent

Sand content: 90 to 94 percent

A horizon

Hue: 10YR

Value: 4 to 6, 3 to 5 moist

Chroma: 1 or 2

Texture: Fine sand

Clay content: 1 to 4 percent

Redox concentrations: Amount—0 to 2 percent; size—fine or medium; contrast—faint or distinct; boundary—clear to sharp; shades—brown

EC (dS/m): 0 to 2

SAR: 0 to 4

Reaction: Very strongly acid to neutral

C horizon

Hue: 10YR

Value: 6 to 8, 5 to 7 moist

Chroma: 2 to 4

Texture: Fine sand

Clay content: 1 to 4 percent

Redox concentrations: Amount—1 to 5 percent; size—fine or medium; contrast—faint to prominent; boundary—clear to sharp; shades—brown

Redox depletions: Amount—0 to 2 percent; size—fine or medium; contrast—faint; boundary—clear to diffuse; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 6

Reaction: Strongly acid to neutral

Cg horizon

Hue: 10YR, 2.5Y, 5Y, or N/

Value: 6 to 8, 5 to 7 moist

Chroma: 0 to 2

Texture: Fine sand or loamy fine sand

Clay content: 1 to 10 percent

Redox concentrations: Amount—0 to 7 percent; size—fine to coarse; contrast—faint to prominent; boundary—clear to sharp; shades—brown

Redox depletions: Amount—0 to 10 percent; size—fine to coarse; contrast—faint; boundary—diffuse or clear; shades—gray

EC (dS/m): 0 to 2

SAR: 0 to 6

Reaction: Moderately acid to neutral

Sarita Series

The Sarita series consists of very deep, well drained, moderately slowly permeable soils formed in sandy eolian deposits over loamy Quaternary age alluvium. These soils are on gently undulating sandy eolian plains associated with vegetated dunes on the Sand Sheet Prairie of the South Texas Coastal Plain. Slope ranges from 0 to 5 percent. Mean annual air temperature is about 73 degrees F, and mean annual precipitation is about 25 inches.

Taxonomic Class

Loamy, mixed, active, hyperthermic Grossarenic Paleustalfs

Typical Pedon

Sarita fine sand, 0 to 3 percent slopes in rangeland at an elevation of 70 feet. (Colors are for dry soil unless otherwise stated.) (fig. 55)

A—0 to 8 inches; dark grayish brown (10YR 4/2) fine sand, light brownish gray (10YR 6/2) dry; single grain; loose, very friable; common fine roots; slightly acid; clear smooth boundary.

E—8 to 48 inches; brown (10YR 5/3) fine sand, very pale brown (10YR 7/3) dry; single grain; loose, very friable; few fine roots; slightly acid; abrupt smooth boundary.

2Bt1—48 to 52 inches; grayish brown (10YR 5/2) fine sandy loam, pale brown (10YR 6/3) dry; moderate coarse prismatic structure parting to weak medium angular blocky; extremely hard, friable; few distinct clay films on surfaces of peds;



Figure 55.—Profile of Sarita fine sand, in an area of Sarita fine sand, 0 to 5 percent slopes. The subsoil, or argillic horizon, begins at a depth of about 5 feet. (Scale in M-meters, and FT-feet)

common fine pores; few fine and medium faint yellowish brown (10YR 5/4) redox concentrations; slightly acid; clear smooth boundary.

2Bt2—52 to 58 inches; brown (10YR 5/3) sandy clay loam, pale brown (10YR 6/3) dry; moderate coarse prismatic structure parting to weak medium angular blocky; extremely hard, friable; common distinct clay films on surfaces of peds; few fine and medium pores; many medium and coarse distinct strong brown (7.5YR 5/6) and a few fine distinct red (2.5YR 4/6) redox concentrations; neutral; gradual smooth boundary.

2Bt3—58 to 80 inches; yellowish brown (10YR 5/4) sandy clay loam, light yellowish brown (10YR 6/4) dry; weak medium angular blocky structure; very hard, friable; common faint clay films on vertical surfaces of peds; moderately alkaline.

Type Location

Hidalgo County, Texas; from the intersection of U.S. Highway 281 and Texas Highway 186 in Linn; 6.6 miles north on U.S. Highway 281 to ranch road; 1.4 miles east on ranch road, 100 feet south in rangeland. Linn NE, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 38 minutes, 39 seconds, North; Longitude: 98 degrees, 05 minutes, 26 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. Precipitation pattern is moist during spring and fall months and dry during summer and winter months. The soil

moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Solum thickness: More than 80 inches

Depth to argillic horizon: 40 to 60 inches

Particle-size control section (weighted average):

Clay content: 18 to 35 percent

CEC/clay ratio: 0.40 to 0.60

A horizon

Hue: 7.5YR or 10YR

Value: 4 to 6

Chroma: 2 to 4

Texture: Fine sand or loamy fine sand

Reaction: Slightly acid or neutral

E horizon

Hue: 7.5YR or 10YR

Value: 5 to 8

Chroma: 2 to 4

Texture: Fine sand or loamy fine sand

Reaction: Slightly acid or neutral

2Bt horizon

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 2 to 4

Texture: Fine sandy loam or sandy clay loam

Clay content: 12 to 34 percent, with the highest clay contents in the upper few inches of the 2Bt horizon and in a second maximum, or clay bulge expressed graphically, at depths of 60 to 80 inches

Clay films: Few or common; faint or prominent on faces of peds, lining of pores, and bridging of sand grains

Redox concentrations: Amount—few to many; size—medium or coarse; contrast—distinct or prominent; shades—red or brown

Redox depletions: Amount—none to common; size—medium or coarse; contrast—faint to prominent; shades—gray

Reaction: Moderately acid to moderately alkaline

Sataton Series

The Sataton series consists of very deep, poorly drained, very slowly permeable soils. These soils formed in sandy eolian and storm washover sediments of Holocene age. These nearly level soils are on wind-tidal flats on the bay or lagoon side of barrier islands. These soils are subject to frequent flooding by wind tides and tropical storms. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Siliceous, hyperthermic Sodic Psammaquents

Typical Pedon

Satallon fine sand, on a barren wind-tidal flat, south facing slope at less than 1 percent slope; elevation is 2 feet. (Colors are for moist soil unless otherwise stated.)

Anz1—0 to 11 inches; pale brown (10YR 6/3), fine sand; single grain; very friable; many fine vesicular pores; 1/2-inch-thick algal mat on the surface; 7 percent fine and medium distinct dark yellowish brown (10YR 4/4) masses of oxidized iron with sharp boundaries lining pores; strongly saline; strongly effervescent; slightly alkaline; clear smooth boundary.

Anz2—11 to 17 inches; grayish brown (10YR 5/2), stratified loamy fine sand; single grain; very friable; common fine vesicular pores; 1/2-inch layer of dark gray (10YR 4/1) material; 5 percent fine and medium distinct dark yellowish brown (10YR 4/6) masses of oxidized iron with sharp boundaries lining pores; strongly saline; slightly effervescent; slightly alkaline; clear smooth boundary.

Cnzc1—17 to 22 inches; gray (2.5Y 5/1), fine sand; single grain; very friable; 1 percent fine faint light olive brown (2.5Y 5/3) masses of oxidized iron with clear boundaries in matrix; 5 percent medium faint gray (2.5Y 6/1) iron depletions with diffuse boundaries in matrix; strongly saline; very slightly effervescent; slightly alkaline; gradual smooth boundary.

Cnzc2—22 to 67 inches; dark gray (2.5Y 4/1), fine sand; single grain; very friable; 10 percent medium prominent greenish gray (5GY 5/1) iron depletions with clear boundaries in matrix; strongly saline; neutral; gradual smooth boundary.

Cnzc3—67 to 80 inches; gray (2.5Y 5/1), fine sand; single grain; very friable; 5 percent fine and medium prominent dark greenish gray (5G 4/1) iron depletions with clear boundaries in matrix and 20 percent medium prominent greenish gray (5GY 5/1) iron depletions with clear boundaries in matrix; strongly saline; very slightly effervescent; slightly alkaline.

Type Location

Kenedy County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces counties; 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore; 2.4 miles southwest on Park Road 22 to the end of the paved road; 51.3 miles south along beach; 2.4 miles west on wind-tidal flat. South of Potrero Lopeno NE, Texas USGS topographic quad; NAD 83; Latitude: 26 degrees, 40 minutes, 8.50 seconds, North; Longitude: 97 degrees, 21 minutes, 18.60 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. The soil moisture control section is 12 to 36 inches from the soil surface. Although rainfall amounts are that of an Ustic moisture regime, these soils remain saturated throughout in most years because of the location on the landscape. The top of a permanent water table is at a depth of 12 to 18 inches throughout the year in normal years.

Mean annual soil temperature: 74 to 76 degrees F

Depth to endosaturation: 12 to 18 inches

Particle-size control section (weighted average):

Clay content: 4 to 12 percent

Sand content: 88 to 95 percent

Anz horizon

Hue: 10YR or 2.5Y

Value: 5 or 6

Chroma: 2 or 3

Clay content: 4 to 12 percent

Texture: Fine sand or loamy fine sand

Redox concentrations: Amount—2 to 10 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or sharp; shades—brown; location—lining pores

Iron depletions: Amount—0 to 5 percent; size—fine or medium; contrast—faint; boundary—clear or diffuse; shades—gray; location—adjacent to redox concentrations

EC (dS/m): 60 to 175

SAR: 60 to 125

Reaction: Neutral to strongly alkaline

Cnzg horizon

Hue: 10YR, 2.5Y, 5Y, or 5GY

Value: 4 to 6

Chroma: 1 or 2

Clay content: 4 to 12 percent

Texture: Fine sand or loamy fine sand

Redox concentrations: Amount—5 to 25 percent; size—fine to coarse; contrast—faint to prominent; boundary—diffuse to sharp; shades—brown; location—throughout

Iron depletions: Amount—2 to 25 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or diffuse; shades—gray; location—adjacent to redox concentrations

EC (dS/m): 60 to 175

SAR: 60 to 125

Reaction: Neutral to strongly alkaline

Saucel Series

The Saucel series consists of very deep, poorly drained, moderately permeable, saline soils that formed in loamy eolian deposits derived from Holocene age sediments. These nearly level soils are on the coastal plain adjacent to the tidal flats. Slopes are 0 to 1 percent, but mainly less than 0.5 percent. Mean annual air temperature is about 73 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Coarse-loamy, mixed, active, calcareous, hyperthermic Typic Halaquepts

Typical Pedon

Saucel fine sandy loam, on nearly level area of 0.3 percent slope in rangeland at an elevation of 4 feet. (Colors are for moist soil unless otherwise stated.)

Az—0 to 4 inches; grayish brown (2.5Y 5/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine platy structure; slightly hard, friable, slightly sticky, slightly plastic; many fine roots; strongly saline; strongly effervescent, strongly alkaline; abrupt wavy boundary.

Bz1—4 to 17 inches; grayish brown (2.5Y 5/2) fine sandy loam, light gray (2.5Y 7/2) dry; moderate medium prismatic structure parting to weak medium subangular blocky; hard, friable, slightly sticky, slightly plastic; common fine roots; few fine salt crystals; few fine prominent strong brown (7.5YR 5/6) masses of oxidized iron with diffuse boundaries; strongly saline; strongly effervescent; strongly alkaline; gradual smooth boundary.

- Bz2—17 to 34 inches; light brownish gray (2.5Y 6/2) fine sandy loam, light gray (2.5Y 7/2) dry; weak medium prismatic structure parting to weak medium subangular blocky; hard, friable, slightly sticky, slightly plastic; few fine roots; common fine salt crystals; common fine prominent dark brown (7.5YR 3/2) masses of oxidized iron with diffuse boundaries; strongly saline; strongly effervescent; strongly alkaline; gradual smooth boundary.
- Bgz—34 to 44 inches; gray (5Y 5/1) fine sandy loam, light gray (5Y 7/1) dry; weak medium subangular blocky structure; hard, friable, slightly sticky, slightly plastic; strongly saline; strongly effervescent; strongly alkaline; gradual smooth boundary.
- 2Cgz—44 to 52 inches; dark gray (5YR 4/1) loamy fine sand, gray (5Y 5/1) dry; massive; slightly hard, friable, slightly sticky, nonplastic; strongly saline; strongly effervescent; strongly alkaline; clear smooth boundary.
- 3Cgz—52 to 80 inches; olive gray (5Y 5/2) sandy clay loam, light olive gray (5Y 6/2) dry; massive; very hard, firm, sticky and plastic; few fine crystalline masses of salt; few fine calcium carbonate concretions; many coarse prominent light olive brown (2.5Y 5/4) masses of oxidized iron with diffuse boundaries; strongly saline; strongly effervescent; strongly alkaline.

Type Location

Willacy County, Texas; from the intersection of U.S. Highway 77 and Texas Highway 186 on the east side of Raymondville; 18.0 miles east on Texas Highway 186 to the intersection of Texas Highway 497; 4.8 miles east on Texas Highway 497; 0.7 mile north in range. Port Mansfield, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 33 minutes, 8.35 seconds, North; Longitude: 97 degrees, 26 minutes, 28.6 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is 4 to 12 inches from the surface. These soils remain saturated or moist in some or all parts during normal years.

Mean annual soil temperature: 78 to 80 degrees F

Solum thickness: 34 to 50 inches

Salinity: 16 to 70 dS/m or more and increases with depth

Particle-size control section (weighted average):

Clay content: 10 to 18 percent

CEC/clay ratio: 0.40 to 0.60

Az horizon

Hue: 10YR or 2.5Y

Value: 4 to 6

Chroma: 1 or 2

Texture: Fine sandy loam

Effervescence: Strong

Reaction: Moderately alkaline or strongly alkaline

Bz1 horizon

Hue: 2.5Y or 5Y

Value: 5 to 7

Chroma: 1 or 2

Texture: Loamy fine sand or fine sandy loam

Redox concentrations: Amount—few or common; contrast—faint to prominent

Effervescence: Strong

Reaction: Moderately alkaline or strongly alkaline

Bz2 horizon

Hue: 2.5Y, 5Y, or N/

Value: 5 to 7

Chroma: 0 to 2

Texture: Fine sandy loam

Clay content: 10 to 18 percent

Redox concentrations: Amount—few to many; contrast—faint to prominent

Redox depletions: Amount—few to many; contrast—faint

Effervescence: Strong

Reaction: Moderately alkaline or strongly alkaline

Bgz horizon

Hue: 2.5Y or 5Y

Value: 4 to 7

Chroma: 1 or 2

Texture: Fine sandy loam

Redox concentrations: Amount—none to common; contrast—distinct to prominent

Redox depletions: Amount—none to common; contrast—faint

Effervescence: Strong

Reaction: Strongly alkaline

2C and 3C horizons

Hue: 2.5Y or 5Y

Value: 4 to 6

Chroma: 1 or 2

Texture: Loamy fine sand, fine sandy loam, or sandy clay loam

Redox concentrations: Amount—few to many; contrast—distinct to prominent

Redox depletions: Amount—few to many; contrast—faint

Identifiable salts: Amount—few to many; kind—masses and concretions

Effervescence: Strong

Reaction: Strongly alkaline

Sauz Series

The Sauz series consists of very deep, somewhat poorly drained, moderately slowly permeable soils that formed in loamy eolian deposits derived from Holocene age sediments. These nearly level to very gently sloping soils are on coastal plains. Slope ranges from 0 to 2 percent. Mean annual air temperature is about 73 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Coarse-loamy, mixed, active, hyperthermic Typic Natraqualfs

Typical Pedon

Sauz loamy fine sand—in rangeland on a slope of less than 1 percent at an elevation of 7 feet. (Colors are for dry soil unless otherwise stated.)

A—0 to 7 inches; dark grayish brown (10YR 4/2) loamy fine sand, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; slightly hard, friable; many fine roots; saline; slightly alkaline; abrupt smooth boundary.

Btnz1—7 to 13 inches; dark grayish brown (10YR 4/2) fine sandy loam, grayish brown (10YR 5/2) dry; few fine distinct yellowish brown mottles inside peds; strong coarse columnar structure parting to moderate coarse blocky; very hard,

- firm; common fine roots; distinct light gray rounded cap about 3 mm thick on top of the columns; dark gray clay films and patches of light gray clean sand grains on faces of peds; moderately saline; strongly alkaline; clear smooth boundary.
- Btzn2—13 to 24 inches; grayish brown (2.5Y 5/2) sandy clay loam, light brownish gray (2.5Y 6/2) dry; moderate coarse prismatic structure parting to moderate coarse blocky; hard, friable; common fine roots; gray clay films on faces of peds; moderately saline; strongly alkaline; gradual smooth boundary.
- Btknz—24 to 40 inches; grayish brown (2.5Y 5/2) sandy clay loam, light brownish gray (2.5Y 6/2) dry; weak coarse prismatic structure parting to weak medium subangular blocky; hard, friable; common fine roots; few fine salt crystals; few masses of calcium carbonate and other salts; strongly saline; strongly effervescent; strongly alkaline; gradual smooth boundary.
- Bknz—40 to 55 inches; grayish brown (2.5Y 5/2) fine sandy loam, light brownish gray (2.5Y 6/2) dry; weak medium subangular blocky structure; slightly hard, friable; few fine roots; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; many fine salt crystals and calcium carbonate nodules; strongly saline; strongly effervescent; strongly alkaline; gradual smooth boundary.
- Cnzzg—55 to 80 inches; gray (5Y 5/1) fine sandy loam, gray (5Y 6/1) dry; massive; slightly hard, friable; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; few fine salt crystals; strongly saline; strongly effervescent; strongly alkaline.

Type Location

Willacy County, Texas; from the intersection of U.S. Highway 77 and Texas Highway 186 on the east side of Raymondville; 18 miles east on Texas Highway 186 to the intersection with Texas Highway 497; 5.2 miles east on Texas Highway 497 to East Port Road in Port Mansfield; 0.8 mile east on East Port Road to Matagorda Road; 0.1 mile south on Matagorda Road; 50 feet east of road in rangeland. Port Mansfield, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 32 minutes, 59.7 seconds, North; Longitude: 97 degrees, 25 minutes, 27 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is 4 to 12 inches from the surface. These soils remain dry in some parts of the moisture control section for 90 or more cumulative days in normal years. The driest periods occur in late winter to early spring and during mid-summer.

Mean annual soil temperature: 76 to 80 degrees F

Depth to natric horizon: 3 to 14 inches

Depth to secondary carbonates: 20 to 36 inches

SAR: More than 13 and increases with depth in the B and C horizons

Particle-size control section (weighted average):

Clay content: 10 to 18 percent

CEC/clay ratio: 0.40 to 0.60

A horizon

Hue: 10YR

Value: 4 to 7

Chroma: 1 or 2

Texture: Loamy fine sand

EC (dS/m): 2 to 4

Effervescence: None

Reaction: Neutral or slightly alkaline

Btnz horizon

Hue: 10YR or 2.5Y

Value: 4 to 7

Chroma: 1 or 2

Texture: Fine sandy loam or sandy clay loam

EC (dS/m): 2 to 16

Effervescence: None

Reaction: Moderately alkaline to very strongly alkaline

Btknz horizon

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 1 or 2

Texture: Fine sandy loam or sandy clay loam

Identifiable secondary carbonate: Amount—few or common; size—fine or medium

EC (dS/m): 4 to 16

Effervescence: Slight or strong

Reaction: Moderately alkaline to very strongly alkaline

Bknz horizon

Hue: 10YR to N/

Value: 5 to 7

Chroma: 0 to 2

Texture: Fine sandy loam or sandy clay loam

Clay content: 10 to 25 percent

Redox concentrations: Amount—few to many; shades—brown or yellow

Identifiable secondary carbonate: Amount—few to many; size—fine to coarse

EC (dS/m): 4 to 16

Effervescence: Slight to violent

Reaction: Moderately alkaline to very strongly alkaline

Cnzg horizon

Hue: 10YR to N/

Value: 5 to 8

Chroma: 0 to 2

Texture: Fine sandy loam or sandy clay loam

Clay content: 10 to 25 percent

Redox concentrations: Amount—few to many; shades—brown or yellow

EC (dS/m): 8 to 30

Effervescence: Slight to strong

Reaction: Moderately alkaline to very strongly alkaline

Tatton Series

The Tatton series consists of very deep, very poorly drained, very slowly permeable soils. These soils formed in sandy eolian and storm washover sediments of Holocene age. These nearly level soils are on wind-tidal flats on the bay or lagoon side of barrier islands. These soils are subject to very frequent flooding by wind tides and tropical storms. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Siliceous, hyperthermic Sodic Psammaquents

Typical Pedon

Tatton fine sand, on a barren wind-tidal flat with a slope of less than 1 percent at an elevation of 0.5 feet. (Colors are for moist soil unless otherwise stated.)

Anz—0 to 4 inches; light yellowish brown (2.5Y 6/3) fine sand; moderate fine platy in the upper 2 inches and massive; very friable; 1/8- to 1/4-inch-thick algal mat on surface; strongly saline; strongly effervescent; moderately alkaline; clear smooth boundary.

Anzg—4 to 12 inches; light brownish gray (2.5Y 6/2) fine sand; massive; very friable; few light yellowish brown (2.5Y 6/3) strata about 1.5 inches thick; strongly saline; strongly effervescent; strongly alkaline; gradual smooth boundary.

Cnzg1—12 to 18 inches; greenish gray (10Y 6/1) loamy fine sand; massive; very friable; 2 percent fine and medium prominent brownish yellow (10YR 6/6) masses of oxidized iron with diffuse boundaries at top of horizon; strongly saline; very slightly effervescent; slightly alkaline; clear smooth boundary.

Cnzg2—18 to 26 inches; light brownish gray (2.5Y 6/2) fine sand; massive; very friable; 4 percent medium prominent dark grayish brown (2.5Y 4/2) iron depletions with diffuse boundaries in matrix; strongly saline; strongly effervescent; slightly alkaline; clear smooth boundary.

Cnzg3—26 to 40 inches; dark greenish gray (5G 4/1) fine sand; massive; very friable; few greenish gray (5GY 6/1) strata about 1/8- to 1/4-inch-thick; strongly saline; noneffervescent; slightly alkaline; clear smooth boundary.

Cnzg4—40 to 80 inches; dark bluish gray (5B 4/1) fine sand; massive; very friable; very distinct sulfur smell; strongly saline; noneffervescent; slightly alkaline.

Type Location

Willacy County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties; 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore; 2.4 miles southwest on Park Road 22 to the end of the paved road; 57.9 miles south along the beach; 3.9 miles west on wind-tidal flat. South of Potrero Lopeno SE, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 34 minutes, 13.60 seconds, North; Longitude: 97 degrees, 20 minutes, 15.30 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. The soil moisture control section is 12 to 36 inches from the soil surface. Although rainfall amounts are that of an Ustic soil moisture regime, these soils remain saturated throughout in most years because of location on the landscape. The top of a permanent water table is at a depth of 0 to 9 inches throughout the year in normal years.

Mean annual soil temperature: 74 to 76 degrees F

Depth to endosaturation: 0 to 9 inches

Texture: Sand, fine sand, loamy sand, or loamy fine sand

EC (dS/m): 60 to 175

SAR: 60 to 125

Particle-size control section (weighted average):

Clay content: 4 to 12 percent

Sand content: 85 to 95 percent

Anz horizon

Hue: 10YR or 2.5Y

Value: 5 or 6

Chroma: 2 or 3

Texture: Fine sand

Redox concentrations: Amount—0 to 5 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or sharp; location—lining pores

Redox depletions: Amount—0 to 5 percent; size—fine or medium; contrast—faint; boundary—clear or diffuse; location—adjacent to masses of oxidized iron

Reaction: Neutral to strongly alkaline

Anzg horizon

Hue: 10YR, 2.5Y, 5Y, or N/

Value: 5 or 6

Chroma: 1 or 2

Texture: Sand, fine sand, loamy sand, or loamy fine sand

Redox concentrations: Amount—0 to 10 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or sharp; location—lining pores

Redox depletions: Amount—0 to 5 percent; size—fine or medium; contrast—faint; boundary—clear or diffuse; location—adjacent to masses of oxidized iron

Reaction: Neutral to strongly alkaline

Cnzg horizon

Hue: 10YR, 2.5Y, 5Y, 5GY, 5G, 5B, or N/

Value: 4 to 6

Chroma: 0 to 2

Texture: Sand, fine sand, loamy sand, or loamy fine sand

Redox concentrations: Amount—2 to 25 percent; size—fine to coarse; contrast—faint to prominent; boundary—diffuse to sharp; location—throughout

Redox depletions: Amount—2 to 25 percent; size—fine or medium; contrast—faint or distinct; boundary—clear or diffuse; location—adjacent to masses of oxidized iron

Reaction: Neutral to strongly alkaline

Topo Series

The Topo series consists of very deep, very poorly drained, moderately rapidly permeable soils in dune slacks on the South Texas Coastal Plain. These nearly level soils formed in eolian deposits derived from coastal dune sands. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Coarse-loamy, mixed, semiactive, calcareous, hyperthermic Typic Halaquepts

Typical Pedon

Topo fine sandy loam, on a slightly concave 0 to 1 percent slope in a complex of Arenisco-Topo, 0 to 5 percent slopes in rangeland at an elevation of 19 feet. (Colors are for moist soil unless otherwise stated.)

Anz1—0 to 5 inches; dark grayish brown (2.5Y 4/2) fine sandy loam, grayish brown (2.5Y 5/2) dry; moderate fine subangular blocky structure; slightly hard, friable; 5 percent fine and medium and 1 percent coarse roots; 2 percent fine and medium pores; slightly saline; violently effervescent; strongly alkaline; gradual smooth boundary.

Anz2—5 to 10 inches; grayish brown (2.5Y 5/2) fine sandy loam, light brownish gray (2.5Y 6/2) dry; moderate medium subangular blocky structure; slightly hard, friable; 3 percent fine and 5 percent medium roots; 2 percent fine and medium pores; very slightly saline; violently effervescent; very strongly alkaline; clear smooth boundary.

- Bknz1—10 to 29 inches; light gray (2.5Y 7/2) fine sandy loam, pale yellow (2.5Y 8/2) dry; weak coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, friable; 3 percent fine and medium roots; 3 percent fine and medium pores; 2 percent light brownish gray (2.5Y 6/2) and 2 percent medium faint dark gray (5Y 4/1) iron depletions with diffuse boundaries in the matrix; 10 percent dark gray (5Y 4/1) land crab krotovinas; 2 percent calcium carbonate masses; slightly saline; violently effervescent; very strongly alkaline; gradual smooth boundary.
- Bknz2—29 to 39 inches; light brownish gray (2.5Y 6/2) loamy fine sand, light gray (2.5Y 7/2) dry; weak coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, friable; 3 percent fine and medium roots; 3 percent fine and few medium pores; 2 percent fine faint light brownish gray (2.5Y 6/2) iron depletions with diffuse boundaries in the matrix; 15 percent dark gray (5Y 4/1) land crab krotovinas; 2 percent calcium carbonate masses; slightly saline; violently effervescent; very strongly alkaline; gradual smooth boundary.
- Bknz3—39 to 50 inches; light olive gray (5Y 6/2) fine sandy loam, light gray (5Y 7/2) dry; weak coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, friable; 3 percent fine and 1 percent medium roots; 2 percent fine pores; 5 percent medium faint greenish gray (10Y 6/1) iron depletion with diffuse boundaries in the matrix; 15 percent dark gray (5Y 4/1) land crab krotovinas; 2 percent land crab fragments; 2 percent calcium carbonate masses and 2 percent spherical calcium carbonate nodules; slightly saline; noneffervescent; strongly alkaline; gradual smooth boundary.
- 2Bnzg1—50 to 61 inches; greenish gray (5GY 5/1) fine sandy loam, greenish gray (5GY 6/1) dry; weak coarse prismatic structure parting to weak medium subangular blocky; slightly hard, friable; 3 percent fine and 1 percent medium roots; 2 percent fine pores; 5 percent medium prominent light olive brown (2.5Y 5/6) masses of oxidized iron with clear boundaries in the matrix; 5 percent coarse faint dark greenish gray (10GY 4/1) iron depletions with diffuse boundaries in the matrix; 15 percent dark gray (N 4/) land crab krotovinas; slightly saline; noneffervescent; strongly alkaline; gradual smooth boundary.
- 2Bnzg2—61 to 68 inches; greenish gray (5GY 5/1) loamy fine sand, greenish gray (5GY 6/1) dry; weak coarse prismatic structure parting to weak medium subangular blocky; slightly hard, friable; 2 percent fine and medium roots; 2 percent fine pores; 5 percent coarse faint dark greenish gray (10GY 4/1) iron depletions with diffuse boundaries in the matrix; 5 percent coarse prominent light olive brown (2.5Y 5/6) masses of oxidized iron with clear boundaries in the matrix; 15 percent dark gray (N 4/) land crab krotovinas; 10 percent brittle masses of grayish green (5G 5/2) sandy clay loam material; slightly saline; noneffervescent; strongly alkaline; clear smooth boundary.
- 2Bknzg—68 to 80 inches; light olive gray (5Y 6/2) loamy fine sand, light gray (5Y 7/2) dry; weak coarse prismatic structure parting to weak medium subangular blocky structure; slightly hard, friable; 2 percent fine pores; 3 percent fine and medium faint greenish gray (10GY 6/1) iron depletions with diffuse boundaries in the matrix; 10 percent krotovinas; slightly saline; strongly effervescent; strongly alkaline.

Type Location

Kenedy County, Texas; from the intersection of La Parra Avenue and U.S. Highway 77 in Sarita; 15 miles south on U.S. Highway 77; 7.8 miles southeast on ranch road; 2.1 miles southeast and northeast on ranch road; 2.8 miles generally north on ranch road; 800 feet west in rangeland. San Pedro Ranch, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 58 minutes, 51.50 seconds, North; Longitude: 97 degrees, 39 minutes, 56.30 seconds, West.

Range in Characteristics

Soil moisture: An Aquic soil moisture regime. Although rainfall amounts are that of an Ustic soil moisture regime, the soil is ponded or has a permanent water table at depths of 0 to 24 inches for at least two months in most years.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 0 to 20 inches

Depth to redox depletions or depleted matrix: 0 to 20 inches

Depth to endosaturation: 0 to 24 inches for at least two months in most years

Particle-size control section (weighted average):

Clay content: 10 to 18 percent

Sand content: 65 to 85 percent

CEC/clay ratio: 0.24 to 0.40 (semiactive)

Anz horizon

Hue: 10YR or 2.5Y

Value: 4 or 5

Chroma: 1 or 2

Texture: Fine sandy loam or sandy loam

Clay content: 10 to 18 percent

Redox concentrations: Amount—0 to 7 percent; size—fine or medium; contrast—faint or distinct; boundaries—clear or sharp

Redox depletions: Amount—0 to 10 percent; size—fine or medium; contrast—faint; boundaries—diffuse or clear

EC (dS/m): 0 to 8

SAR: 8 to 40

Reaction: Slightly alkaline to very strongly alkaline

Bknz horizon

Hue: 10YR to 5Y

Value: 6 to 8

Chroma: 1 or 2

Texture: Loamy fine sand or fine sandy loam

Clay content: 10 to 20 percent

Redox concentrations: Amount—1 to 15 percent; size—fine or medium; contrast—faint to prominent; boundaries—clear or sharp

Redox depletions: Amount—0 to 5 percent; size—fine; contrast—faint; boundaries—diffuse or clear

EC (dS/m): 0 to 16

SAR: 20 to 60

Reaction: Moderately alkaline to very strongly alkaline

2Bnzg or 2Bknzg horizons

Hue: 5Y to 5GY

Value: 5 to 7

Chroma: 1 or 2

Texture: Loamy fine sand or fine sandy loam

Clay content: 10 to 20 percent

Redox concentrations: Amount—0 to 15 percent; size—fine or medium; contrast—faint to prominent; boundaries—diffuse or sharp

Redox depletions: Amount—0 to 15 percent; size—fine to coarse; contrast—faint to prominent; boundaries—diffuse or clear

EC (dS/m): 0 to 16

SAR: 10 to 40

Reaction: Moderately alkaline to very strongly alkaline

2BC horizon (where present)

Hue: 5Y to 5GY

Value: 5 or 6

Chroma: 1 or 2

Texture: Sandy loam or fine sandy loam

Redox concentrations: Amount—2 to 5 percent; size—fine to coarse; contrast—distinct or prominent; boundary—sharp to diffuse

Redox depletions: Amount—2 to 8 percent; size—fine to coarse; contrast—faint or distinct; boundary—clear or diffuse

EC (dS/m): 4 to 16

SAR: 10 to 40

Effervescence: None

Reaction: Moderately alkaline to very strongly alkaline

Twinpalms Series

The Twinpalms series consists of very deep, somewhat poorly drained, moderately permeable soils that formed in sandy and loamy sediments dredged from submerged areas. These very gently sloping soils are on low mounds on spoil pile areas. These soils are subject to occasional flooding by high storm surge from strong tropical storms. Slope ranges from 1 to 3 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Coarse-loamy, siliceous, active, calcareous, hyperthermic Aquic Ustorthents

Typical Pedon

Twinpalms fine sand—in an area of Twinpalms-Yarborough complex, 0 to 3 percent slopes on a southwest facing 2 percent slope in wildlife land at an elevation of 6 feet. (Colors are for moist soil unless otherwise stated.)

- A1—0 to 8 inches; light olive brown (2.5Y 5/3) fine sand, light yellowish brown (2.5Y 6/3) dry; weak fine subangular blocky structure parting to single grain; loose; 6 percent very fine and fine roots; 5 percent fine faint light yellowish brown (2.5Y 6/4) masses of oxidized iron with clear boundaries lining pores; 2 percent gravel-sized and 10 percent sand-sized seashell fragments; non-saline; very slight effervescence; slightly alkaline; clear smooth boundary.
- A2—8 to 18 inches; grayish brown (2.5Y 5/2) fine sand, light brownish gray (2.5Y 6/2) dry; single grain; loose; 3 percent very fine and fine roots; 3 percent fine distinct pale yellow (2.5Y 7/4) masses of oxidized iron with sharp boundaries lining pores; 2 percent gravel-sized and 10 percent sand-sized seashell fragments; non-saline; very slightly effervescent; slightly alkaline; clear smooth boundary.
- C—18 to 30 inches; olive (5Y 5/3) fine sandy loam, pale olive (5Y 6/3) dry; massive; slightly hard, friable; 2 percent very fine and fine roots; 15 percent medium distinct greenish gray (10Y 6/1) clay balls; 2 percent fine and medium gypsum crystals; 5 percent fine and medium prominent dark yellowish brown (10YR 4/6) masses of oxidized iron with clear boundaries lining pores; 4 percent gravel-sized and 10 percent sand-sized seashell fragments; 5 percent gravel-sized serpulid reef fragments; non-saline; very slightly effervescent; slightly alkaline; clear smooth boundary.
- Cg1—30 to 40 inches; light brownish gray (2.5Y 6/2) gravelly fine sand, light gray (2.5Y 7/2) dry; massive; loose; 1 percent very fine and fine roots; 4 percent fine and medium distinct dark gray (10YR 4/1) and 3 percent fine and medium gray (N 5/) iron depletions with clear boundaries in the matrix; 20 percent gravel-sized,

and 10 percent sand-sized seashell fragments; 7 percent gravel-sized serpulid reef fragments; non-saline; very slightly effervescent; slightly alkaline; gradual smooth boundary.

Cg2—40 to 67 inches; light olive gray (5Y 6/2) loamy fine sand, light gray (5Y 7/2) dry; massive; soft, very friable; 1 percent very fine and fine roots; 2 percent 1 cm thick strata of greenish gray (10Y 5/1) clay; 2 percent 1 cm thick strata of olive gray (5Y5/2) clay loam; 3 percent fine and medium prominent light olive brown (2.5Y 5/6) and 1 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron with clear to sharp boundaries lining pores; 3 percent fine and medium distinct olive gray (5Y 5/2) iron depletions with diffuse boundaries in the matrix; 7 percent gravel-sized and 10 percent sand-sized seashell fragments; 5 percent gravel-sized serpulid reef fragments; non-saline; very slightly effervescent; slightly alkaline; gradual smooth boundary.

Cg3—67 to 80 inches; gray (5Y 6/1) gravelly fine sand, light gray (5Y 7/1) dry; massive; soft, very friable; 5 percent fine and medium distinct greenish gray (5GY 6/1) iron depletions with diffuse boundaries in the matrix; 10 percent gravel-sized and 10 percent sand-sized seashell fragments; 10 percent paragravel-sized claystone fragments; non-saline; very slightly effervescent; slightly alkaline.

Type Location

Kenedy County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties; 8.0 mile southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore; 0.8 mile southwest on Park Road 22 to the intersection of Novillo and Bird Island Basin Road; 2.1 miles west-northwest and north on Bird Island Basin Road to boat ramp; 28.7 miles by boat generally west-southwest along the Gulf Intracoastal Waterway into the landcut to channel running east near the center of Potrero Grande; 600 feet east into channel; 400 feet north on mound in wildlife land. Potrero Cortado, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 06 minutes, 13.7 seconds, North; Longitude: 97 degrees, 26 minutes, 24.7 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime bordering on an Udic soil moisture regime. The soil moisture control section is dry in some or all parts for less than 120 cumulative days in normal years. A water table is present in most pedons at depths of 30 to 60 inches throughout the year in most years.

Mean annual soil temperature: 74 to 76 degrees F

Depth to masses of oxidized iron: 0 to 10 inches

Depth to iron depletions: 30 to 60 inches

Depth to endosaturation: 30 to 60 inches throughout the year in most years

Particle-size control section (weighted average):

Clay content: 5 to 18 percent

Sand content: 70 to 95 percent

Other features: Coarse fragments consist of seashell and seashell fragments, or fragments of serpulid reefs.

A horizon

Hue: 10YR or 2.5Y

Value: 4 to 6, 5 to 7 dry

Chroma: 2 or 3

Texture: Fine sand

Clay content: 5 to 10 percent

Redox concentrations: Amount—2 to 15 percent; size—fine or medium; contrast—faint to prominent; boundary—clear to sharp

Coarse fragments: 1 to 14 percent
EC (dS/m): 0 to 4
SAR: 0 to 8
Reaction: Slightly alkaline to strongly alkaline

C horizon

Hue: 10YR to 5Y
Value: 5 or 6, 6 or 7 dry
Chroma: 2 or 3
Texture: Loamy fine sand, fine sandy loam, or their gravelly counterparts
Clay content: 5 to 18 percent
Redox concentrations: Amount—2 to 15 percent; size—fine or medium; contrast—faint or distinct; boundary—clear to sharp
Redox depletions: Amount—0 to 2 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear
Coarse fragments: 1 to 20 percent
EC (dS/m): 0 to 4
SAR: 0 to 8
Reaction: Slightly alkaline to strongly alkaline

Cg horizon

Hue: 2.5Y, 5Y, 10Y, or 5GY
Value: 5 to 6, 6 or 7 dry
Chroma: 1 or 2
Texture: Fine sand, loamy fine sand, fine sandy loam, or their gravelly counterparts
Clay content: 5 to 18 percent
Redox concentrations: Amount—2 to 20 percent; size—fine to coarse; contrast—faint to prominent; boundary—clear to sharp
Redox depletions: Amount—0 to 20 percent; size—fine to coarse; contrast—faint or distinct; boundary—diffuse or clear
Coarse fragments: 1 to 30 percent
EC (dS/m): 0 to 4
SAR: 0 to 8
Reaction: Neutral to strongly alkaline

Victine Series

The Victine series consists of very deep, somewhat poorly drained, very slowly permeable soils that formed in clayey fluviomarine sediments derived from the Beaumont Formation of Late Pleistocene-age. These nearly level soils are on low flats on the South Texas Coastal Plain. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 33 inches.

Taxonomic Class

Fine, smectitic, hyperthermic Sodic Haplusterts

Typical Pedon

Victine clay loam, 0.5 percent slope in rangeland; elevation is approximately 6 feet; description taken from the microlow (Colors are for dry soil unless otherwise stated.)

A—0 to 6 inches; black (10YR 2/1) clay loam, very dark gray (10YR 3/1) dry; weak fine and medium subangular blocky structure; hard, firm; many very fine roots;

- common very fine vesicular and tubular pores; 2 percent wormcasts; 1 percent crawfish krotovinas; moderately alkaline; clear smooth boundary.
- Bss1—6 to 18 inches; very dark gray (10YR 3/1) clay, very dark gray (10YR 3/1) dry; moderate fine and medium subangular blocky structure; very hard, firm; many very fine roots; common very fine tubular pores; 5 percent faint slickensides; 10 percent prominent pressure faces; 1 percent wormcasts; moderately alkaline; gradual smooth boundary.
- Bss2—18 to 24 inches; dark gray (10YR 4/1) clay, gray (10YR 5/1) dry; moderate medium angular blocky structure; very hard, firm; many very fine roots; many very fine tubular pores; 5 percent faint slickensides; 20 percent prominent pressure faces; 1 percent wormcasts; 1 percent medium nodules of calcium carbonate; 1 percent fine faint very dark gray (10YR 3/1) iron-manganese masses with clear boundaries in matrix; few cracks 5 mm wide filled with very dark gray (10YR 3/1) clay; strongly alkaline; gradual wavy boundary.
- Bkss—24 to 35 inches; dark gray (10YR 4/1) clay, gray (10YR 5/1) dry; moderate medium wedge structure parting to moderate medium angular blocky; very hard, firm; many very fine roots; many very fine tubular pores; 25 percent distinct slickensides; 20 percent prominent pressure faces; 2 percent wormcasts; 3 percent medium nodules of calcium carbonate; 5 percent coarse masses of calcium carbonate; 1 percent fine faint very dark gray (10YR 3/1) iron-manganese masses with clear boundaries in matrix; few cracks 5 mm wide filled with very dark gray (10YR 3/1) clay; very slightly effervescent; moderately alkaline; gradual wavy boundary.
- Bkssy—35 to 45 inches; gray (10YR 5/1) clay, gray (2.5Y 5/1) dry; moderate medium wedge structure parting to moderate medium angular blocky; very hard, firm; common very fine roots; common very fine tubular pores; 15 percent distinct slickensides; 20 percent prominent pressure faces; 2 percent medium and coarse nodules of calcium carbonate; 3 percent medium and coarse masses of calcium carbonate; 8 percent medium and coarse gypsum crystals; 10 percent medium and coarse gypsum masses; 1 percent fine spherical very dark gray (10YR 3/1) iron-manganese nodules in matrix; 2 percent fine faint very dark gray (10YR 3/1) iron-manganese masses with sharp boundaries in matrix; few cracks 5 mm wide filled with dark gray (10YR 4/1) clay; very slightly effervescent; moderately alkaline; gradual wavy boundary.
- Bky1—45 to 54 inches; 50 percent gray (2.5Y 5/1) and 50 percent gray (10YR 5/1) clay, gray (2.5Y 6/1) and gray (10YR 6/1) dry; moderate medium prismatic structure parting to moderate medium angular blocky; very hard, firm; common very fine roots; common very fine tubular pores; 5 percent prominent slickensides; 25 percent prominent pressure faces; 2 percent medium nodules of calcium carbonate; 3 percent coarse masses of calcium carbonate; 2 percent fine and medium gypsum crystals; 1 percent fine and medium gypsum masses; 1 percent fine spherical very dark gray (10YR 3/1) iron-manganese nodules in matrix; 1 percent fine prominent reddish yellow (7.5YR 6/8) masses of oxidized iron with sharp boundaries in matrix; 2 percent fine distinct very dark gray (10YR 3/1) iron-manganese masses with sharp boundaries in matrix; very slightly effervescent; moderately alkaline; gradual wavy boundary.
- Bky2—54 to 65 inches; 60 percent gray (2.5Y 6/1) and 40 percent pale yellow (2.5Y 8/4) clay, light gray (2.5Y 7/1) and pale yellow (2.5Y 8/4) dry; moderate medium and coarse angular blocky structure; very hard, firm; common very fine roots; common very fine tubular pores; 2 percent faint slickensides; 15 percent distinct pressure faces; 2 percent medium nodules of calcium carbonate; 8 percent coarse masses of calcium carbonate; 2 percent fine and medium gypsum crystals; 2 percent fine and medium prominent black (7.5YR 2.5/1) iron-manganese masses with sharp boundaries in matrix; 2 percent fine prominent

brownish yellow (10YR 6/6) masses of oxidized iron with sharp boundaries in matrix; very slightly effervescent; moderately alkaline; gradual wavy boundary. Bky3—65 to 80 inches; light gray (2.5Y 7/2) silty clay, light gray (2.5Y 7/2) dry; weak coarse subangular blocky structure; very hard, firm; common very fine roots; common very fine tubular pores; 2 percent faint slickensides; 15 percent distinct pressure faces; 2 percent medium nodules of calcium carbonate; 5 percent coarse masses of calcium carbonate; 2 percent fine and medium gypsum crystals; 2 percent fine prominent black (7.5YR 2.5/1) iron-manganese masses with sharp boundaries in matrix; 5 percent medium distinct yellow (2.5Y 7/6) masses of oxidized iron with sharp boundaries in matrix; slightly effervescent; strongly alkaline.

Type Location

Aransas County, Texas; from the Aransas National Wildlife Refuge Visitor Center; 4.0 miles west on Park Road to intersection with North Road; 0.5 mile north on North Road; 100 feet west in range. Tivoli SE, Texas USGS topographic quadrangle; NAD 83; Latitude: 28 degrees, 18 minutes, 21.40 seconds, North; Longitude: 96 degrees, 52 minutes, 1.00 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is from 4 to 12 inches below the surface. These soils have cracks in normal years that are 0.25 inch or wider through a thickness of 10 inches or more within 20 inches of the mineral soil surface, for 90 or more cumulative days per year. Typically, cracks remain open between 90 and 120 cumulative days.

Gilgai microrelief: These are cyclic soils that have a gilgai microrelief. The distance from the center of the microhigh to the center of the microlow ranges from 36 to 72 inches. The microhighs are typically calcareous to the surface and have a color similar, or up to 2 values higher than the microlow.

Mean annual soil temperature: 72 to 74 degrees F

Depth to secondary calcium carbonate: 0 to 20 inches

Depth to gypsum crystals or masses: 24 to 40 inches

Particle-size control section (weighted average):

Clay content: 45 to 55 percent

A horizon

Hue: 10YR or 2.5Y

Value: 2 to 4

Chroma: 1

Texture: Clay loam or clay

Clay content: 30 to 45 percent

EC (dS/m): 0.5 to 2

SAR: 1 to 4

Reaction: Slightly alkaline or moderately alkaline

Bss horizon

Hue: 10YR or 2.5Y

Value: 2 to 5

Chroma: 1

Texture: Silty clay or clay

Clay content: 45 to 55 percent

Calcium carbonate equivalent: 0 to 2 percent

Identifiable secondary carbonates: Amount—0 to 2 percent; size—fine; kind—masses or nodules; location—in matrix

Gypsum: Amount—0 to 2 percent; size—fine; kind—masses or crystals; location—in matrix

Redox concentrations: Amount—0 to 2 percent; size—fine; contrast—faint or distinct; boundary—sharp; location—lining pores; shades—brown and gray

EC (dS/m): 1 to 4

SAR: 13 to 18

Reaction: Moderately alkaline or strongly alkaline

Bkss horizon

Hue: 10YR or 2.5Y

Value: 4 to 6

Chroma: 1 or 2

Texture: Clay or silty clay

Clay content: 45 to 55 percent

Calcium carbonate equivalent: 0 to 2 percent

Identifiable secondary carbonates: Amount—2 to 10 percent; size—fine or medium; kind—masses or nodules; location—in matrix

Gypsum: Amount—0 to 2 percent; size—fine; kind—masses or crystals; location—in matrix

Redox concentrations: Amount—0 to 2 percent; size—fine; contrast—faint or distinct; boundary—sharp; location—lining pores; shades—brown, gray, or yellow

EC (dS/m): 2 to 8

SAR: 13 to 18

Effervescence: Very slight to strong

Reaction: Moderately alkaline or strongly alkaline

Bkssy horizon

Hue: 10YR or 2.5Y

Value: 5 to 7

Chroma: 1 or 2

Texture: Silty clay or clay

Clay content: 45 to 55 percent

Calcium carbonate equivalent: 2 to 8 percent

Identifiable secondary carbonates: Amount—5 to 10 percent; size—fine to coarse; kind—masses or nodules; location—in matrix

Gypsum: Amount—5 to 20 percent; size—fine to coarse; kind—masses or crystals; location—in matrix

Redox concentrations: Amount—0 to 5 percent; size—fine or medium; contrast—faint or distinct; boundary—sharp; location—lining pores or in matrix; shades—brown, gray, or yellow

EC (dS/m): 2 to 8

SAR: 13 to 20

Effervescence: Very slight to strong

Reaction: Moderately alkaline or strongly alkaline

Bky horizon

Hue: 10YR or 2.5Y

Value: 5 to 8

Chroma: 1 to 4

Texture: Silty clay or clay

Clay content: 45 to 55 percent

Calcium carbonate equivalent: 5 to 20 percent

Identifiable secondary carbonates: Amount—5 to 15 percent; size—fine to coarse; kind—masses or nodules; location—in matrix

Gypsum: Amount—2 to 15 percent; size—fine to coarse; kind—masses or crystals; location—in matrix

Redox concentrations: Amount—0 to 5 percent; size—fine or medium; contrast—faint to prominent; boundary—sharp; location—lining pores or in matrix; shades—brown, gray, black, or yellow

EC (dS/m): 2 to 8

SAR: 13 to 20

Effervescence: Very slight to strong

Reaction: Moderately alkaline or strongly alkaline

Victoria Series

The Victoria series consists of very deep, well drained, very slowly permeable soils that formed in clayey deltaic and marine sediments in the Beaumont Formation of Late Pleistocene-age. These nearly level to very gently sloping soils are on the South Texas coastal plain. Slope ranges from 0 to 3 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 29 inches.

Taxonomic Class

Fine, smectitic, hyperthermic Sodic Haplusterts

Typical Pedon

Victoria clay, 0 to 1 percent slopes in cropland, in a microlow. Elevation is about 58 feet. (Colors are for dry soil unless otherwise stated.)

Ap—0 to 6 inches; black (10YR 2/1) clay, very dark gray (10YR 3/1) dry; weak medium angular blocky and moderate fine granular structure; extremely hard, extremely firm, very sticky, very plastic; calcium carbonate equivalent is 2.5; slight effervescence; moderately alkaline; abrupt smooth boundary.

Bss1—6 to 24 inches; very dark gray (10YR 3/1) clay, very dark gray (10YR 3/1) dry; moderate fine and medium angular blocky structure; extremely hard, extremely firm, very sticky, very plastic; 15 percent distinct slickensides; common cracks filled with black (10YR 2/1) clay; calcium carbonate equivalent is 4.4; strong effervescence; moderately alkaline; gradual wavy boundary.

Bss2—24 to 37 inches; very dark gray (10YR 3/1) clay, very dark gray (10YR 3/1) dry; weak fine and medium wedge structure parting to weak medium angular blocky; extremely hard, extremely firm, very sticky, very plastic; 20 percent distinct slickensides; 1 percent fine light gray (10YR 7/2) carbonate masses; common cracks filled with black (10YR 2/1) clay; calcium carbonate equivalent is 5.2; strong effervescence; strongly alkaline; gradual wavy boundary.

Bnss—37 to 50 inches; pale brown (10YR 6/3) clay, pale brown (10YR 6/3) dry; weak fine and medium wedge structure parting to weak medium angular blocky; extremely hard, extremely firm, very sticky, very plastic; 10 percent distinct slickensides; many cracks filled with dark gray (10YR 4/1) clay; calcium carbonate equivalent is 5.7; strong effervescence; moderately alkaline; gradual wavy boundary.

Bkny1—50 to 62 inches; very pale brown (10YR 7/3) clay, pale yellow (2.5Y 7/3) dry; weak coarse angular blocky structure; extremely hard, extremely firm, very sticky, very plastic; 3 percent fine and medium calcium carbonate masses; 5 percent fine and medium gypsum crystals; common cracks filled with dark gray (10YR 4/1) clay; calcium carbonate equivalent is 6.3; strong effervescence; slightly alkaline; gradual wavy boundary.

Bkny2—62 to 80 inches; very pale brown (10YR 7/3) clay, pale yellow (2.5Y 8/3) dry; weak very coarse subangular blocky structure; extremely hard, extremely firm, very sticky, very plastic; 3 percent faint grayish brown (10YR 5/2) organic stains on vertical faces of peds; 1 percent fine spherical black (10YR 2/1) iron-manganese nodules; 2 percent medium distinct brown (10YR 5/3) iron-manganese masses with sharp boundaries on faces of peds; 1 percent fine and medium gypsum crystals; 1 percent fine and medium calcium carbonate masses; calcium carbonate equivalent is 7.3; strong effervescence; slightly alkaline.

Type Location

Nueces County, Texas; from the intersection of Farm Road 665 and Farm Road 892 west of Petronila; 1.0 mile north on Farm Road 892 to County Road 24; 0.9 mile west on County Road 24; 150 feet north in cropland. Driscoll East, Texas USGS topographic quadrangle; NAD 83; Latitude 27 degrees, 41 minutes, 15 seconds, North; Longitude 97 degrees, 40 minutes, 58.7 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. The soil moisture control section is from 4 to 12 inches below the surface. These soils have cracks because of the dryness for 90 or more cumulative days per year. The majority of the dry conditions occur from July to September. When dry, these soils have cracks 0.5 inch to about 3 inches wide that extend from the soil surface or from the base of an Ap horizon to a depth of 60 inches or more.

Solum thickness: More than 80 inches

Thickness of the mollic epipedon: Ranges from 30 to 50 inches or more in the microlows and 12 to 30 inches in the microhighs.

Effervescence: Moderate or strong throughout, except the A horizon which is noneffervescent in microlows in some pedons that are not cultivated.

Mean annual soil temperature: 70 to 74 degrees F

Depth to salt and gypsum accumulations: 50 to 65 inches

Depth to SAR of 13 or more: Ranges from 30 to 40 inches from the surface in the microlow and 20 to 30 inches from the surface in the microhigh.

Particle-size control section (weighted average):

Clay content: 45 to 60 percent

Ap horizon

Hue: 10YR

Value: 2 to 4

Chroma: 1

Texture: Clay

Clay content: 40 to 50 percent

Calcium carbonate equivalent: 0 to 5 percent

Identifiable secondary carbonate: Amount—none in the microlows to few in the microhighs; size—fine

EC (dS/m): 0.5 to 2

SAR: 1 to 10

Reaction: Neutral to moderately alkaline

Bss horizon

Hue: 10YR

Value: 2 to 4

Chroma: 1 or 2

Texture: Clay

Clay content: 45 to 60 percent

Calcium carbonate equivalent: 1 to 10 percent

Identifiable secondary carbonate: Amount—none in the microlows and few in the microhighs; size—fine

EC (dS/m): 0.5 to 4

SAR: 4 to 20

Reaction: Slightly alkaline to strongly alkaline

Bnss horizon

Hue: 10YR or 2.5Y

Value: 4 to 6

Chroma: 1 to 3

Texture: Clay

Clay content: 50 to 60 percent

Calcium carbonate equivalent: 5 to 10 percent

Identifiable secondary carbonate: Amount—none or few in the microlows and few in the microhighs; size—fine

EC (dS/m): 2 to 8

SAR: 14 to 24

Reaction: Moderately alkaline or strongly alkaline

Bkny horizon

Hue: 10YR or 2.5Y

Value: 5 to 8

Chroma: 2 or 3

Texture: Clay

Clay content: 45 to 60 percent

Calcium carbonate equivalent: 5 to 15 percent

Identifiable secondary carbonate: Amount—few or common in the microlows and common to many in the microhighs; size—fine or medium

EC (dS/m): 7 to 13

Gypsum: Trace to 5 percent

SAR: 15 to 24

Reaction: Slightly alkaline or moderately alkaline

Yarborough Series

The Yarborough series consists of very deep, poorly drained, very slowly permeable soils that formed in sandy and loamy sediments dredged from submerged areas. These nearly level soils are on flats within and along the margins of spoil pile areas. These soils are subject to very frequent flooding by high storm surge from strong tropical storms. Slopes are 0 to 1 percent. Mean annual air temperature is about 72 degrees F, and mean annual precipitation is about 27 inches.

Taxonomic Class

Coarse-loamy, siliceous, active, calcareous, hyperthermic Typic Halaquepts

Typical Pedon

Yarborough fine sandy loam—in an area of Twinpalms-Yarborough complex, 0 to 3 percent slopes in wildlife land at an elevation of 1 foot. (Colors are for moist soil unless otherwise stated.)

Anz—0 to 7 inches; dark grayish brown (2.5Y 4/2) fine sandy loam, grayish brown (2.5Y 5/2) dry; weak fine and medium subangular blocky structure; friable, slightly hard; common fine and medium roots; 7 percent medium and coarse distinct pale

- olive (5Y 6/3) and 2 percent fine prominent dark yellowish brown (10YR 4/6) masses of oxidized iron with sharp boundaries lining pores; 1 percent medium faint very dark grayish brown (2.5Y 3/2) iron depletions with diffuse boundaries in the matrix; 8 percent gravel-sized and 20 percent sand-sized shell fragments; strongly saline; strongly effervescent; slightly alkaline; clear smooth boundary.
- Cnzg1—7 to 20 inches; light olive gray (5Y 6/2) fine sandy loam, light brownish gray (2.5Y 6/2) dry; massive; friable, slightly hard; 7 percent fine and medium prominent olive yellow (2.5Y 6/6) masses of oxidized iron with sharp boundaries lining pores; 1 percent fine faint olive gray (5Y 5/2) iron depletions with diffuse boundaries in the matrix; 12 percent gravel-sized and 20 percent sand-sized shell fragments; strongly saline; strongly effervescent; moderately alkaline; gradual smooth boundary.
- Cnzg2—20 to 30 inches; light olive gray (5Y 6/2) gravelly fine sandy loam, light gray (2.5Y 7/2) dry; massive; friable, slightly hard; 20 percent medium and coarse greenish gray (5G 5/1) sandy clay loam; 4 percent fine and medium prominent olive yellow (2.5Y 6/6) masses of oxidized iron with sharp boundaries in the matrix; 20 percent gravel-sized and 20 percent sand-sized shell fragments; strongly saline; strongly effervescent; moderately alkaline; clear smooth boundary.
- Cnzg3—30 to 60 inches; greenish gray (5G 5/1) fine sandy loam, gray (5Y 6/1) dry; massive; friable, slightly hard; 30 percent gray (2.5Y 6/1) gravelly loamy fine sand; 2 percent fine and medium prominent olive (5Y 5/6) masses of oxidized iron with sharp boundaries in the matrix; 5 percent medium faint light olive gray (5Y 6/2) iron depletions with diffuse boundaries in the matrix; 7 percent gravel-sized and 15 percent sand-sized shell fragments; strongly saline; violently effervescent; slightly alkaline; clear smooth boundary.
- Cnzg4—60 to 72 inches; dark gray (5Y 4/1) loamy fine sand, light brownish gray (2.5Y 6/2) dry; massive; very friable, soft; 10 percent 3 cm thick strata of greenish gray (5G 5/1) sandy clay loam; 2 percent gravel-sized and 15 percent sand-sized shell fragments; strongly saline; violently effervescent; slightly alkaline; clear smooth boundary.
- Cnzg5—72 to 80 inches; gray (5Y 5/1) fine sand, light gray (2.5Y 7/2) dry; massive; very friable, soft; 3 percent gravel-sized and 10 percent sand-sized shell fragments; strongly saline; violently effervescent; slightly alkaline.

Type Location

Kenedy County, Texas; from the intersection of Park Road 22 and the county line between Kleberg and Nueces Counties; 8.0 miles southwest on Park Road 22 to the pay station entrance of Padre Island National Seashore; continue 0.8 mile southwest on Park Road 22 to the intersection of Novillo and Bird Island Basin Road; 2.1 miles west-northwest and north on Bird Island Basin Road to boat ramp; 14.6 miles by boat generally west-southwest along the Gulf Intracoastal Waterway to the mouth of Baffin Bay; 900 feet east to Spoil Island near green can marker 215; 350 feet south in low flat in wildlife land. Point of Rocks, Texas USGS topographic quadrangle; NAD 83; Latitude: 27 degrees, 17 minutes, 42.8 seconds, North; Longitude: 97 degrees, 24 minutes, 16.9 seconds, West.

Range in Characteristics

Soil moisture: Aquic conditions between 10 and 20 inches below the soil surface at some time in normal years. Although rainfall amounts are that of an Ustic soil moisture regime, the top of a permanent water table is at a depth of 10 to 24 inches throughout the year, and is saturated for several days following heavy rains or extremely high tides.

Salinity: Variable, but in one or more horizons that are at least 6 inches thick. Electrical conductivity (EC) (dS/m) of the water extracted from a saturated paste is more than

30 dS/m for more than 90 days in normal years. The SAR ranges from 20 to 60 throughout the soil control section. The location in the soil of the maximum salinity and sodicity varies according to length of time since last flooding.

Mean annual soil temperature: 74 to 76 degrees F

Depth to redox concentrations: 0 to 10 inches

Depth to iron depletions: 6 to 24 inches

Depth to endosaturation: 10 to 24 inches throughout the year.

Particle-size control section (weighted average):

Clay content: 5 to 18 percent

Sand content: 75 to 90 percent

Coarse fragments: Consists of seashell and seashell fragments or fragments of serpulid reefs

Anz horizon

Hue: 2.5Y or 5Y

Value: 4 to 6, 5 to 7 dry

Chroma: 1 or 2

Texture: Fine sandy loam

Clay content: 7 to 18 percent

Redox concentration: Amount—2 to 10 percent; size—fine or medium; contrast—distinct or prominent; boundary—clear or sharp

Redox depletions: Amount—0 to 15 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear

Coarse fragments: 1 to 10 percent

EC (dS/m): 15 to 60

SAR: 20 to 60

Reaction: Slightly alkaline or moderately alkaline

Upper Cnzg horizon

Hue: 2.5Y, 5Y, 10Y, or 5GY

Value: 5 or 6 (6 or 7 dry)

Chroma: 1 or 2

Texture: Loamy fine sand, fine sandy loam, or their gravelly counterparts

Clay content: 5 to 18 percent

Redox Concentration: Amount—0 to 10 percent; size—fine or medium; contrast—faint to prominent; boundary—clear or sharp

Redox depletions: Amount—2 to 15 percent; size—fine to coarse; contrast—faint or distinct; boundary—diffuse or clear

Coarse fragments: 3 to 20 percent

EC (dS/m): 20 to 60

SAR: 20 to 60

Reaction: Slightly alkaline or moderately alkaline

Lower Cnzg horizon

Hue: 5Y, 10Y, 5GY, 5G, or N/

Value: 4 to 6, 5 to 7 dry

Chroma: 0 or 1

Texture: Fine sand, loamy fine sand, or fine sandy loam

Clay content: 5 to 18 percent

Redox concentrations: Amount—0 to 3 percent; size—fine or medium; contrast—distinct or prominent; boundary—clear or sharp

Redox depletions: Amount—3 to 20 percent; size—fine or medium; contrast—faint or distinct; boundary—diffuse or clear

Coarse fragments: 1 to 10 percent

EC (dS/m): 20 to 60

SAR: 20 to 70

Reaction: Slightly alkaline or moderately alkaline

Yturria Series

The Yturria series consists of very deep, well drained, moderately rapid permeable soils that formed in loamy sediments. These soils are on nearly level to gently sloping blowout dunes on vegetated sand sheet. Slope ranges from 0 to 5 percent. Mean annual air temperature is 73 degrees F, and mean annual precipitation is about 26 inches.

Taxonomic Class

Coarse-loamy, mixed, superactive, hyperthermic Pachic Haplustolls

Typical Pedon

Yturria fine sandy loam—in cropland at an elevation of 48 feet. (Colors are for dry soil unless otherwise stated.) (fig. 56)

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) fine sandy loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; hard, friable; many fine roots; neutral; clear smooth boundary.

A—8 to 26 inches; very dark grayish brown (10YR 3/2) fine sandy loam, grayish brown (10YR 5/2) dry; weak fine granular and subangular blocky structure; slightly hard, friable; common fine roots; slightly alkaline; gradual smooth boundary.

Bk1—26 to 44 inches; dark grayish brown (10YR 4/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure; slightly hard, friable; few fine calcium carbonate nodules and masses; strongly effervescent; moderately alkaline; gradual smooth boundary.

Bk2—44 to 65 inches; brown (10YR 5/3) fine sandy loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; slightly hard, friable; many fine calcium carbonate nodules and masses; strongly effervescent; moderately alkaline, gradual smooth boundary.

Bk3—65 to 80 inches; pale brown (10YR 6/3) fine sandy loam, very pale brown (10YR 7/3) dry; weak subangular blocky structure; slightly hard, friable; few fine calcium carbonate nodules and masses; very strongly effervescent; moderately alkaline.

Type Location

Willacy County, Texas; from the intersection of U.S. Highway 77 and Texas Highway 186 in Raymondville; 10.5 miles west on Texas Highway 186 to county road; 3.1 miles north on county road, 0.1 mile east, 100 feet south of a fence in cropland. La Sal Vieja, Texas USGS topographic quadrangle; NAD 83; Latitude: 26 degrees, 31 minutes, 52 seconds, North; Longitude: 97 degrees, 56 minutes, 53 seconds, West.

Range in Characteristics

Soil moisture: An Ustic soil moisture regime. Precipitation pattern is moist during spring and fall months and dry during summer and winter months. The soil moisture control section is dry in some or all parts for more than 90 but less than 180 cumulative days in normal years. June through August and December through February are the driest months. These soils are intermittently moist in September through November and March through May.

Solum thickness: More than 80 inches

Particle-size control section (weighted average):

Clay content: 10 to 18 percent

CEC/clay ratio: 0.60 to 0.80

A horizon

Hue: 10YR

Value: 3 to 5

Chroma: 2 or 3

Texture: Fine sandy loam or loam

Reaction: Neutral or slightly alkaline

Bk horizon

Hue: 7.5YR or 10YR

Value: 4 to 7

Chroma: 2 to 4

Texture: Fine sandy loam or loam

Secondary carbonates: Few to many masses and nodules of calcium carbonate

Effervescence: Slight to violent

Reaction: Neutral to moderately alkaline

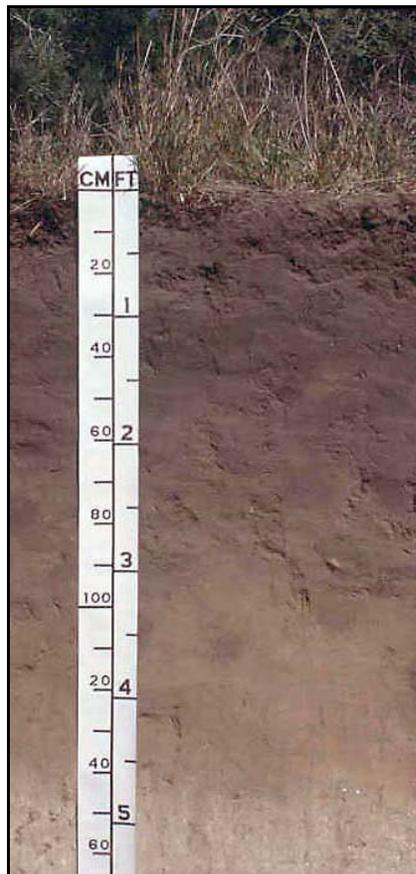


Figure 56.—Profile of Yturria fine sandy loam, in an area of Yturria fine sandy loam, 1 to 5 percent slopes. The dark-colored surface layer, or mollic epipedon, is more than 24 inches thick. (Scale in CM-centimeters, and FT-feet)

Formation of the Soil

In this section, the factors of soil formation to include parent material, climate, plant and animal life, relief, and time are discussed and how they are related to the formation of the soils in Kenedy and Kleberg Counties. Also, the processes of horizon differentiation and the surficial geology and geomorphology of the counties are described.

Factors of Soil Formation

Soil is formed by the action of soil-forming processes on material deposited or accumulated by geological forces. The characteristics of a soil depend on the physical and mineralogical composition of the parent material, the climate under which the soil material has accumulated and has existed since accumulation, the plant and animal life on and in the soil, the relief, and the length of time the forces of soil development have acted on the soil material.

Climate and living organisms are active factors of soil formation. They act on the parent material that has accumulated through the weathering of rocks and slowly change it into a natural body that has genetically related horizons. The effects of climate and living organisms are conditioned by relief. The parent material affects the kind of soil profile that forms and, in extreme cases, determines it almost entirely.

Finally, time is needed for changing the parent material into soil. Generally, a long time is needed for the development of distinct horizons. The factors of soil formation are so closely interrelated in their effects on the soil that few generalizations can be made regarding the effect of any one factor unless conditions are specified for the other factors.

Parent Material

Parent material is the unconsolidated mass from which a soil forms. It determines the chemical and mineral composition of the soil. In Kenedy and Kleberg Counties, the parent material consists of unconsolidated sediments of Pleistocene, Pliocene, and Holocene epochs.

Additional information about parent material is in the section, "Surficial Geology and Geomorphology."

Climate

Kenedy and Kleberg Counties have a subhumid climate with mild, dry winters and hot summers. Low rainfall and high evaporation rate, temperature, and wind are some of the climatic factors which influence soil formation.

The variable rainfall pattern causes the soil to be alternately wet and dry. When a clayey soil such as Victoria becomes dry, it cracks. During rains the cracks fill with water, the soil swells as it gets wet, and the cracks close. This alternate shrinking and swelling upon drying and wetting causes a rise and fall in the soil surface, and churning or mixing of the soil that has been termed "self swallowing." The cracks in these soils, initially, allow the soil to take in water rapidly and wet deeply. Deep soil development and gilgai microrelief are the results of these processes.

Water moving through the soil can carry clay particles downward in suspension from the surface layer. The clay particles are deposited in the subsoil as the water flow ceases. As clay accumulates, permeability decreases, slowing future water movement, and deposition of clay accelerates. Palobia soils have clay accumulations in their subsoils.

Rainfall also leaches minerals from the upper layers and deposits them in the lower layers. As a result, Colmena, Czar, and many other soils have a layer in which calcium carbonate has accumulated.

Also, the accumulation of organic matter is affected by temperature and moisture. Low rainfall and high temperatures limit the vegetative growth and accumulation of organic matter in the soils. However, in those areas where more soil moisture is present, such as floodplains and depressional areas, the vegetative production and organic matter contents are higher than the surrounding upland soils. Near surface soil temperatures are lower where there is more vegetation, and the rate of decomposition of organic matter is generally slower

Plant and Animal Life

Plants, animals, insects, bacteria, worms, and fungi are all important in the formation of soils. Gains in organic matter and nitrogen in the soil, gains or losses in plant nutrients, and changes in structure and porosity are caused by these living organisms.

Throughout most of the survey area, tall grasses have had more influence on soil formation than other plants. These grasses provided litter that protected the surface from erosion and added organic matter, which darkened the surface layer in Victoria, Cranell, Clareville, and other soils. The grass roots reached deep into the soil and fed on nutrients and minerals at the lower depths. Carbonates, nutrients, and organic matter were distributed throughout the soil profile as these plants died and were decomposed. The decomposed plant roots left channels and increased the rate of water intake and the aeration of the soil. Earthworms and other soil organisms fed on the decomposed roots. The boring of earthworms helped to channel water and air through the soil. Soils that formed under grassland vegetation and in alkaline parent material have more organic matter and a darker surface layer than soils that formed under trees.

Human activities also have influenced soil formation. Indians burned the tall prairie grasses to herd buffalo. Later, European settlers imported cattle to graze the vegetation on the land. Some of the soils have been used for cultivated crops, so the native vegetation has been destroyed and some areas have eroded. Currently, most farmers plan to leave crop residue on the surface or implement reduced or strip tillage to control erosion, but these measures have not always been applied.

Relief

Relief influences soil formation through its effect on drainage, runoff, and the depth of penetration by soil moisture. The relief in the survey area is nearly level to gently sloping. The nearly level areas are in broad flats and drainages throughout the survey area. The more sloping areas are along breaks to the major streams, in the eastern part of Kleberg County, draining into the bays. Kenedy County has eolian sands of varying depths covering buried alluvial sediments. These sandy deposits create undulating relief that may have steeper short slopes, but the landscape remains nearly level to gently sloping.

Time

Time, generally a long time, is required for the formation of soils that have distinct horizons. The length of time that the parent material has been in place is commonly reflected in the degree of profile development in the soils.

The soils in the survey area range in age from young to old. Yturria are young soils that formed from windblown sediments on the leeward and windward sides of depressional areas. Older soils are generally nearly level or gently sloping and are in stable upland positions on the landscape. Palobia soils are old. Calcium carbonate has been leached from the upper part of the profile and has accumulated in the subsoil. Also, clay has translocated over time in the upper part of the subsoil.

Processes of Horizon Differentiation

Soils are derived from the decomposition of the mineral particles they contain and from the plant and animal remains added to them. Silicate clays, mineral particles, humus, living organisms, and water have a major influence in determining the character of the soil. Soil layers, or horizons, are formed by additions, removals, transfers, and transformations within the soil profile. (soil survey staff, 1998) These processes include additions or losses of organic, mineral, and gaseous materials to the soil, transfers of material from one point to another within the soil, and physical and chemical transformation of mineral and organic materials within the soil. In most soils, more than one of these processes have been active in the development of horizons and many processes occur simultaneously.

Soil profiles are made up of a series of horizons that extend from the surface to the parent material. The parent material has been influenced little by the processes of soil formation. The horizons that make up a soil profile differ in one or more properties, such as color, texture, structure, consistency, porosity, and reaction.

Most profiles have four major horizons. These are the A, E, B, and C horizons. Some soils do not have E, B, or C horizons. One particular soil in the survey area has an O horizon.

The O horizon is dominated by organic materials. Some are saturated with water for long periods or were once saturated, and are now drained. The O horizon in the survey area is on top of an A horizon. The Novillo soils contain an O horizon.

The A horizon is the surface layer. It is the horizon that has the maximum accumulation of organic matter. Organic matter has accumulated, partially decomposed, and been incorporated into the soil. The accumulation of organic matter in soils is greatest in and above the surface layer. Many of the more stable products of organic matter decomposition remain as finely divided materials that result in darker colors, increased water-holding and cation-exchange capacities, and granulation of the soil.

The content of organic matter in the soils in Kenedy and Kleberg County ranges from low to medium. Czar, Clareville, and Colmena soils have accumulated sufficient organic matter to form a dark surface layer, or A horizon. Nueces, Premont, and Delfina soils have a low organic matter light surface layer, or A horizon.

The E horizon is the subsurface layer. It is directly below the A horizon. It is characterized by the leaching of dissolved or suspended materials. Clay particles, organic matter, and oxides of free iron have been leached from the E horizon, leaving a concentration of light-colored sand and silt particles or other resistant materials. Estella, Nueces, and Sarita soils have well developed E horizons.

The B horizon is the subsoil. It is directly below the A or E horizons. It is the horizon that has the maximum accumulation of dissolved or suspended materials,

such as clay and iron. It may also be an altered horizon that has a distinctly different structure than that of the A horizon but shows little evidence of clay translocation or accumulation.

A B horizon that has a significant amount of clay accumulation is called a Bt horizon. Clay accumulates in horizons largely because of translocation from upper to lower horizons. As water moves downward, it can carry small amounts of clay in suspension. This clay accumulates at depths penetrated by water. It accumulates in fine pores in the soil and as clay films on surfaces of peds. Over long periods of time, at least a few thousand years, such processes can result in distinct horizons. Clareville, Cranell, Delfina, and Padrones soils are examples of soils that have strongly developed Bt horizons. Aransas, Montealto, Victine, and Victoria soils have clays with a high degree of shrink-swell, which destroys the clay films.

A B horizon that has distinct structure or color development with little or no evidence of clay accumulation is called a Bw horizon. Plant roots and other organisms contribute to the rearrangement of soil materials into secondary aggregates. Organic residues and secretions of organisms serve as cementing agents that help stabilize structural aggregates. Soils that have appreciable amounts of clay develop structural aggregates because of drying and wetting and because of shrinking and swelling.

Some soils in the survey area have a high content of clay that has montmorillonite (smectite) as the dominant clay mineral. These soils shrink and develop wide, deep cracks when dry, and swell and become very plastic and cohesive when wet. Because of overburden pressure, soil movement, and stress caused by wetting and drying, a platy and wedge-like structure can form in the Bss horizon. Individual structural aggregates have distinct cleavage planes and polished faces known as slickensides. When the soil is dry, soil material from the surface often falls into the wide, deep cracks or is washed into the cracks by rain. When the soil is wet, lateral pressure caused by the swelling can result in surface heaving, which eventually leads to the formation of gilgai microrelief that consists of microhighs and microlows. Montealto, Victine, and Victoria soils have Bss horizons that have slickensides. They have gilgai microrelief.

Another important process in soil formation is the loss of components from the soil. Water can leach many soluble components, such as calcium carbonate, to the lower horizons in the profile. A horizon that has a significant accumulation of calcium carbonate is designated by the addition of the symbol "k." Gertrudis and Yturria soils are examples of soils that have accumulations of calcium carbonate in the lower horizons.

Soils that have an accumulation of sodium are known as natric soils. The natric horizon is designated as a Bn or Cn horizon. The dispersive properties of sodium accelerates clay illuviation. Examples of soils with natric horizons are Medanito, Narta, Padrones, Palobia, Quiteria, and Ramita.

Soils that show strong gleying are known as Bg or Cg horizons. The strong gleying indicates either iron has been reduced and removed during soil formation, or saturation with stagnant water (anaerobic conditions) has reduced the iron in the soil. The gley can occur in soils, as a Bg horizon; or in the parent material, as a Cg horizon. Examples of soils with gleying include Portalto and Yarborough.

Soils with a presence of gypsum also occur in the survey area. A gypsic horizon is an illuvial horizon in which secondary gypsum accumulates. These horizons are designated as Bz or Cz horizons. Gypsum can dissolve easily in soils, and if amounts are excessive may damage buildings, roads, and other structures. Soils with gypsic horizons are Lalinda, Victine, and Victoria.

Some soils in the survey area have an accumulation of salts more soluble than gypsum. These horizons are known as Bz or Cz horizons. Examples of soils with Bz or Cz horizons include Malaquite, Satatton, Tatton, and Topo.

The C horizon is relatively unchanged by soil-forming processes, although in some places it is modified by weathering. It is generally below the B horizon. Soils with a C horizon include Falfurrias, Daggerhill, Madre, Mustang, Padre, Rockport, and Twinpalms.

Surficial Geology and Geomorphology

Kenedy and Kleberg Counties are located in the southern Coastal Plain of Texas. The Geologic Atlas of Texas, the Corpus Christi Sheet, the Laredo Sheet, and the McAllen-Brownsville sheet show the outcrops of geologies in the survey area. These maps show mostly the Quaternary age materials.

Quaternary

The youngest formations are located along the Gulf of Mexico on the eastern side of the survey area, and the older formations are located on the northern and northwestern sides of the survey area.

Listing the geologies from youngest to oldest are; Recent—Spoil materials, Alluvium, Barrier Island deposits, Clay dunes and clay-sand dunes, Active dunes and dune complexes on the mainland, Stabilized sand dunes deposits, Sand sheet deposits, Silt sheet deposits; Pleistocene—Beaumont Formation, and Barrier Island and beach deposits.

Holocene

Holocene age (Recent) deposits are divided into four categories; Fill and Spoil, Alluvium, Barrier Island deposits, and Windblown deposits.

Fill and Spoil

The Intracoastal Waterway at the southern edge of Corpus Christi Bay, travels south between the Texas Gulf Coast mainland and Padre Island. The Intracoastal Waterway is dredged on a regular basis due to tidal and wave action, and creeks spilling into the Laguna Madre. Dredging of the waterway is needed to allow large ships to transit from Corpus Christi to other cities.

Fill material is dredged for raising land surfaces above the alluvium and barrier island deposits creating barrier islands deposits. Spoil material is dredged material forming islands along waterways.

The Twinpalms and Yarborough soils formed from sandy and loamy dredged materials.

Alluvium

Alluvial flood plain deposits are located adjacent to the many streams and creeks throughout the survey area. Most of the creeks are located in Kleberg County. The creeks in Kenedy County are now covered by the sand sheet. Southeasterly flowing streams include Petronila Creek, San Fernando Creek, Escondido Creek, Jaboncillos Creek, Salado Creek, and Palo Blanco Creek. Alluvium is variable due to the nature of sediments deposited. Generally alluvium is loamy. The Czar soils are mapped in alluvial flood plain sediments. Aransas soils are clayey alluvial soils mapped in the Coast Saline Prairies, and are generally below 15 foot elevation.

Alluvial deposits associated with barrier islands and adjacent to Laguna Madre are typically sandy, loamy or clayey, and saline soils. The soils occupy tidal flats, wind tidal flats, and deflation flats. These areas are inundated with saltwater from Laguna Madre and the associated Gulf of Mexico. Baffin soils are mapped on subaqueous grass flats. Other soils mapped in this area include Arrada, Barrada, Sauz, Saucel, Satatton, and Tatton.

Barrier Island Deposits

Geologically, the formation of the barrier island system is considered young, and is thought to have occurred sometime between 3,000 and 5,000 years ago. There are three main theories as to how the island formed. One is that the island formed as an offshore shoal or sandbar. A second is that it formed by split accretion resulting from longshore drift. The third is that the island was formerly a beach for the mainland, and the lagoon formed between the island and the mainland as sea level rose to its present level. (Weiss and White, 1980)

The cross sections shown in Figure 57 and Figure 58 show the relationship of landforms and soil series on the barrier island. There are four cross sections pertaining to Padre Island.

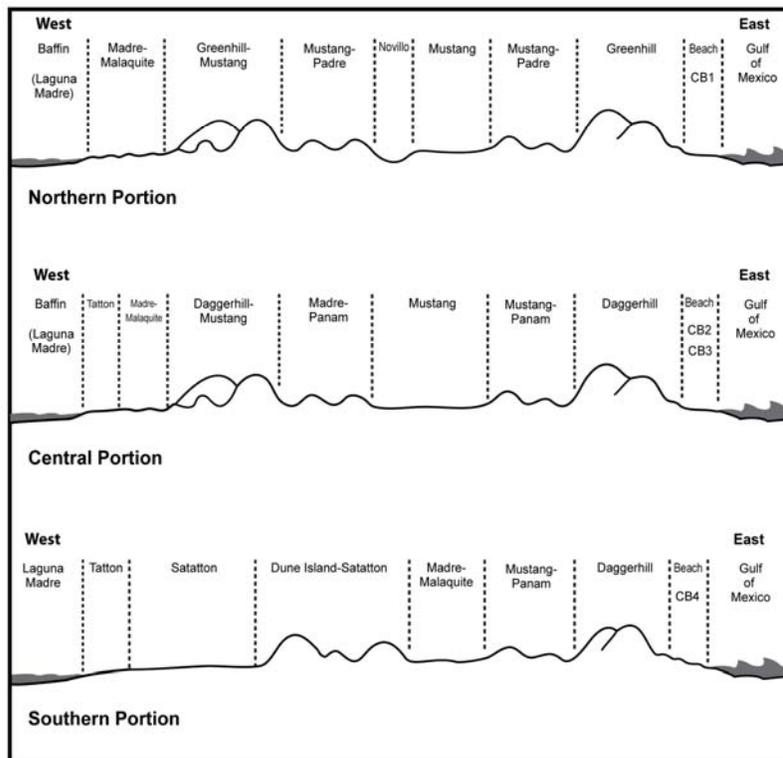


Figure 57.—Generalized cross section of the soils of the northern, central, and southern portion of Padre Island, from the Laguna Madre to the Gulf of Mexico. View is to the north. (Modified from McGowen and others, 1977)

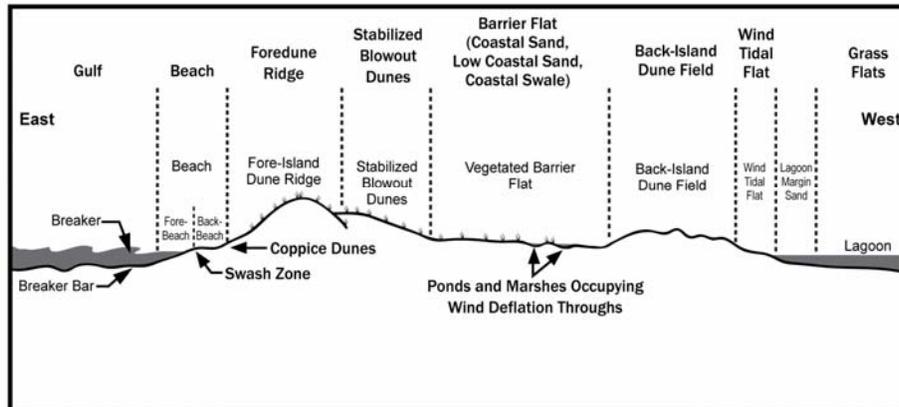


Figure 58.—Generalized cross section of the north Padre Island environments, from the Gulf of Mexico shoreline to Laguna Madre (Modified from McGowen and others, 1977)

Windblown Deposits

The Sand Sheet Prairie is referred to as the Quaternary eolian plain of South Texas. Windblown deposits include: clay dune and clay-sand dune deposits, active sand dunes, stabilized sand dunes, sand sheet deposits, and silt sheet deposits. These eolian deposits blanket the Pleistocene deltaic plains, lagoons, barrier islands, and river systems. As the sand sheet and silt sheet make contact with other geologies to the west, north, and south, the sand and silt deposits thin out.

Clay Dune and Clay-Sand Dunes

Loamy dunes, locally referred to as clay dunes, are wind-deflation deposits and border the western and northern margins of relict lakes. They resulted from eolian deposition of sand-sized aggregates of silt and clay particles that eroded from dry lakebed sediments. Clay dunes generally occur on the northwest flanks of intermittent salt lakes or mudflats. Yturria soils are mapped on the clay dunes.

Active Dunes and Dune Complexes

Sand dunes and the sand dune complexes are dynamic in that they change on an annual basis. The prevailing wind direction and occasional tropical storms move large amounts of sand in a northwestwardly direction. The sand dunes range from a few feet to more than 30 feet high. The two Dune Land miscellaneous areas are mapped in these windblown areas.

Stabilized Dunes and Dune Complexes

Stabilized dunes and dune complexes have been stabilized by vegetation. These were active dunes in the past, but have now stabilized under grass, tree, and shrub vegetation. The predominant trees are live oak. Mid and tall grasses, as well as shrubs and vines occur on these stabilized dunes. Lopeno, Potrero, Arenisco, and Noria soils are mapped on the stabilized dunes. Sauz and Saucel soils are mapped in the dune complexes in lower positions.

Sand Sheet Deposits

Soils on the Sand Sheet Prairie developed during the Holocene, but the duration of soil formation depended on landform stability and when eolian deposition ended. Soil formation initiated with sand dune stabilization. The thickness of the sand sheet

plays a major role in what soil is mapped. Falfurrias, Nueces, Sarita, Cayo, Padrones, Palobia, and Topo soils are mapped in the sand sheet deposits.

Silt Sheet Deposits

Wind-deposited silts and fine sands of the Riviera Loess Sheet are in the extreme northwestern part of this area. These soils have a higher content of clay and salt, particularly in the subsoil, than similar soils of this area. Colmena, Delfina, and Gertrudis soils are mapped on the silt sheet deposits.

Pleistocene Age

The Gulf Coast Prairie is a strip of land about 50 to 80 miles wide that runs parallel to the coastline of the western Gulf of Mexico. Surface geology in this area consists of fluviomarine deposits in (primarily) the Lissie and Beaumont Formations of Pleistocene age, deposited between 2 million years and 10,000 years BP. These clayey and loamy deposits are of fluvial, deltaic, and lagoonal origin and were derived from older rocks to the west.

At the western edge of the Gulf Coast Prairies (mostly within Texas), the parent sediments are older, more weathered, and contain more sands. At the eastern edge (mostly within Louisiana), a mixed loess and alluvial cap occurs within most soils with loess derived from the Mississippi River.

Subsidence associated with the weight of the thick accumulation of Tertiary sediments has caused this sedimentary package to tilt towards the Gulf of Mexico, so successively older deposits crop out from the coastal margin to the interior boundary of this area. Salt domes, natural gas, and petroleum deposits are common in the subsurface throughout this area. Sandy alluvium of Quaternary age, which includes both Pleistocene and Holocene time, has filled the river valleys of the Brazos, Trinity, and other large river systems in this area.

Beaumont Formation

The Beaumont Formation was formed primarily from clayey, deltaic and lagoonal sediments. Within the Beaumont Formation are the clayey lagoonal areas, and the loamy meander ridges. These were formed as rivers carrying sediment to the gulf were cut and filled because of the outflow of meltwater from glaciers.

Within the Beaumont Formation, soil scientists have separated two catenas of soils. The first catena of soils is soils generally mapped above the 15-foot elevation. The Edroy, Victoria, Cranell, and Orelia soils are mapped above 15-foot. The second catena of soils is those soils mapped below the 15-foot elevation. These soils tend to have higher sodicity and salinity levels. The Victine, Narta, and Dietrich soils are mapped below 15-foot.

In the very southern part of Kenedy County, the sand sheet material has thinned out revealing the Beaumont Formation. Soils mapped in this part of the Beaumont Formation include Montealto and Palobia. Many enclosed depressions are expressed on this part of the Beaumont Formation. Incell soils are mapped in these enclosed depressions.

Beaumont Barrier Island and Beach Deposits

The Beaumont Barrier Island and Beach Deposits is a strand plain. It is the southern extent of a strand plain that runs parallel along the gulf coast. It is characterized by poorly defined beach ridges and sand dunes. It is associated with the Ingleside Barrier Island system. Soils mapped on these deposits include Rockport, Portalto, and Dietrich.

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "National Soil Survey Handbook" (available in local offices of the Natural Resources Conservation Service or on the Internet).

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial fan. A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha, alpha—dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Arroyo. The flat—floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short—lived torrent after heavy rain within the watershed.

Aspect. The direction toward which a slope faces. Also called slope aspect.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60—inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp. A flood—plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Base saturation. The degree to which material having cation—exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation—exchange capacity.

Base slope (geomorphology). A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope—wash sediments (for example, slope alluvium).

Bedding plane. A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle-size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock—controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A saucer—, cup—, or trough—shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed; the adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Bottom land. An informal term loosely applied to various portions of a flood plain.

Breaks. A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush

management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche. A general term for a prominent zone of secondary carbonate accumulation in surficial materials in warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Finely crystalline calcium carbonate forms a nearly continuous surface—coating and void—filling medium in geologic (parent) materials. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other minerals (e.g., carbonates, silicate, and sulfate) may occur as accessory cements. Most petrocalcic horizons and some calcic horizons are caliche.

California bearing ratio (CBR). The load—supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation—exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base—exchange capacity but is more precise in meaning.

Cement rock. Clayey limestone used in the manufacture of cement.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil—penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. See Redoximorphic features.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in

diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water—control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are compounds making up concretions. See Redoximorphic features.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil—improving crops and practices more than offset the effects of the soil—depleting crops and practices. Cropping systems are needed on all tilled soils. Soil—improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close—growing crops are alternated with strips of clean—tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coppice dune. See Shrub—coppice dune.

Coprogenous earth (sedimentary peat). A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations). Soil—induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close—growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

- Cropping system.** Growing crops according to a planned system of rotation and management practices.
- Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.
- Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.
- Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.
- Delta.** A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.
- Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.
- Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.
- Diatomaceous earth.** A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.
- Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- Divided—slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close—growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.
- Drainage class (natural).** Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained*. These classes are defined in the "Soil Survey Manual."
- Drainage, surface.** Runoff, or surface flow of water, from an area.
- Drainageway.** A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.
- Draw.** A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.
- Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.
- Dune.** A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.
- Earthy fill.** See Mine spoil.
- Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

- Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.
- Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.
- Eolian deposit.** Sand—, silt—, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.
- Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long—continued supply from melting snow or other source, and its channel is above the water table at all times.
- Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.
- Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
- Erosion (accelerated).* Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.
- Erosion (geologic).* Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains.
Synonym: Natural erosion.
- Erosion surface.** A land surface shaped by the action of erosion, especially by running water.
- Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.
- Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.
- Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *Normal moisture capacity*, or *capillary capacity*.
- Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil.** Sandy clay, silty clay, or clay.
- Firebreak.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.
- First bottom.** An obsolete, informal term loosely applied to the lowest flood—plain steps that are subject to regular flooding.
- Flood plain.** The nearly level plain that borders a stream and is subject to flooding unless protected artificially.
- Flood—plain landforms.** A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps,

flood—plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

- Flood—plain splay.** A fan—shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.
- Flood—plain step.** An essentially flat, terrace—like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.
- Fluvial.** Of or pertaining to rivers or streams; produced by stream or river action.
- Foothills.** A region of steeply sloping hills that fringes a mountain range or high—plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).
- Footslope.** The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- Forb.** Any herbaceous plant not a grass or a sedge.
- Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil—forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
- Gilgai.** Commonly, a succession of microlows (microbasins) and microhighs (microknolls) in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.
- Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.
- Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
- Green manure crop (agronomy).** A soil—improving crop grown to be plowed under in an early stage of maturity or soon after maturity.
- Ground water.** Water filling all the unblocked pores of the material below the water table.
- Gully.** A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
- Hard to reclaim (in tables).** Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.
- Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.
- Head slope (geomorphology).** A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High—residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil—forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil—forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential.

The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasesers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2.....	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5.....	very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream. A stream, or reach of a stream, that does not flow year—round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground—water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close—growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements.

Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at 1/3—or 1/10—bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength. The soil is not strong enough to support loads.

Low—residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Mass movement. A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. See Redoximorphic features.

- Meander belt.** The zone within which migration of a meandering channel occurs; the flood—plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.
- Meander scar.** A crescent—shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.
- Meander scroll.** One of a series of long, parallel, close—fitting, crescent—shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down—valley and toward the outer bank.
- Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.
- Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.
- Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.
- Mine spoil.** An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.
- Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.
- Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.
- Miscellaneous area.** A kind of map unit that has little or no natural soil and supports little or no vegetation.
- Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.
- Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.
- Mollic epipedon.** A thick, dark, humus—rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.
- Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.
- Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: Abundance—*few, common, and many*; size—*fine, medium, and coarse*; and contrast—*faint, distinct, and prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).
- Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)
- Mudstone.** A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.
- Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.
- Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.
- Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. See Redoximorphic features.

Nose slope (geomorphology). A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope—wash sediments (for example, slope alluvium).

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present—day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three-dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

- Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.
- Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.
- Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.
- Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
- Plinthite.** The sesquioxide—rich, humus—poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.
- Plowpan.** A compacted layer formed in the soil directly below the plowed layer.
- Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.
- Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.
- Pore linings.** See Redoximorphic features.
- Potential native plant community.** See Climax plant community.
- Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.
- Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.
- Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.
- Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.
- Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.
- Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grass-like plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.
- Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid.....	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid.....	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline.....	7.9 to 8.4
Strongly alkaline.....	8.5 to 9.0
Very strongly alkaline.....	9.1 and higher

Redoximorphic concentrations. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
 - a. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; and
 - b. Masses, which are noncemented concentrations of substances within the soil matrix; and
 - c. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
 - a. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; and
 - b. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood—plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

- Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground—water runoff or seepage flow from ground water.
- Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.
- Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.
- Sandstone.** Sedimentary rock containing dominantly sand-sized particles.
- Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.
- Saturated hydraulic conductivity (K_{sat}).** See Permeability.
- Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.
- Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.
- Sedimentary rock.** A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.
- Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)
- Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.
- Shale.** Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.
- Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.
- Shoulder.** The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.
- Shrink-swell (in tables).** The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.
- Shrub—coppice dune.** A small, streamlined dune that forms around brush and clump vegetation.
- Side slope (geomorphology).** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope—wash sediments.
- Silica.** A combination of silicon and oxygen. The mineral form is called quartz.
- Silica—sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm—temperate, humid regions, and especially those in the tropics, generally have a low ratio.
- Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate—rock terrain are the main components of karst topography.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level.....	0 to 1 percent
Very gently sloping.....	1 to 3 percent
Gently sloping	3 to 5 percent
Moderately sloping.....	5 to 8 percent
Strongly sloping.....	8 to 12 percent
Moderately steep	12 to 20 percent
Steep	20 to 45 percent
Very steep	45 percent and higher

Slope alluvium. Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope—wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na+ to Ca ++ + Mg++. The degrees of sodicity and their respective ratios are:

Slight.....	less than 13:1
Moderate	13—30:1
Strong.....	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one—half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand.....	1.0 to 0.5
Medium sand.....	0.5 to 0.25
Fine sand.....	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt.....	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless soils are either single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. See Underlying material.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

- Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."
- Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.
- Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.
- Terrace (conservation).** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.
- Terrace (geomorphology).** A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.
- Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."
- Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.
- Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- Toeslope.** The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed—depression floors.
- Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
- Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- Tread.** The flat to gently sloping, topmost, laterally extensive slope of terraces, flood—plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.
- Upland.** An informal, general term for the higher ground of a region, in contrast with a low—lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.
- Underlying material.** The part of the soil below the solum.
- Valley fill.** The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.
- Variagation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation
(Recorded for the period 1971-2000 at Port Mansfield, Texas)

Month	Temperature (Degrees F)			Precipitation (Inches)			
	Average daily maximum	Average daily minimum	Average	Average	30% chance will have		Average number of days w/0.1 or more
					less than	more than	
January	64.8	48.9	56.9	1.48	0.54	1.78	3
February	67.9	52.5	60.2	1.74	0.62	2.18	2
March	73.8	60.3	67.0	1.24	0.22	1.48	1
April	77.9	66.1	72.0	1.50	0.41	1.87	2
May	82.5	72.6	77.5	3.01	1.17	3.70	3
June	86.9	76.2	81.5	2.46	0.82	2.98	3
July	88.4	77.1	82.7	1.23	0.22	1.46	2
August	88.4	76.6	82.5	1.86	0.65	2.24	3
September	86.1	73.1	79.6	5.00	2.30	6.10	6
October	81.0	67.0	74.0	3.23	1.64	3.95	4
November	74.0	59.3	66.7	2.12	0.84	2.61	2
December	67.0	51.2	59.1	1.30	0.53	1.62	2
Annual	---	---	---	---	21.45	29.32	
Average	78.2	65.1	71.6	---	---	---	---
Total	---	---	---	26.16	---	---	33

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 50.0 degrees F)

Table 2.--Freeze Dates in Spring and Fall
(Recorded for the period 1971-2000 at Port Mansfield, Texas)

Probability	Temperature		
	24°F or lower	28°F or lower	32°F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	January 9	January 31	February 16
2 years in 10 later than--	December 22	January 20	February 6
5 years in 10 later than--	-----	December 20	January 15
First freezing temperature in fall:			
1 year in 10 earlier than--	December 31	December 17	December 2
2 years in 10 earlier than--	January 12	December 27	December 11
5 years in 10 earlier than--	-----	January 17	December 29

Table 3.--Growing Season
(Recorded for the period 1971-2000 at Port Mansfield, Texas)

Probability	Daily Minimum Temperature		
	Number of days higher than 24°F	Number of days higher than 28°F	Number of days higher than 32°F
	Days	Days	Days
9 years in 10	> 365	343	314
8 years in 10	> 365	> 365	328
5 years in 10	> 365	> 365	> 365
2 years in 10	> 365	> 365	> 365
1 year in 10	> 365	> 365	> 365

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 4.--Temperature and Precipitation
(Recorded for the period 1971-2000 at Kingsville, Texas)

Month	Temperature (Degrees F)						Precipitation (Inches)			
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have		Average number of growing degree days*	Average	2 years in 10 will have		Average number of days w/0.1 or more
				Maximum temperature higher than	Minimum temperature less than			less than	more than	
January	68.1	44.4	56.3	88	21	247	1.69	0.62	2.82	3
February	72.6	47.9	60.3	92	26	308	1.88	0.46	2.99	2
March	80.4	55.0	67.7	97	30	532	1.19	0.14	2.03	2
April	84.7	61.8	73.2	99	39	678	1.88	0.17	3.52	2
May	88.9	68.1	78.5	100	52	880	3.53	1.24	5.63	4
June	93.1	71.8	82.5	101	60	967	4.47	1.84	6.67	4
July	95.3	72.9	84.1	102	66	1,054	2.45	0.45	4.18	3
August	95.9	73.1	84.5	103	66	1,058	2.92	0.57	4.30	4
September	92.0	70.1	81.1	101	53	931	4.17	1.18	7.00	5
October	86.5	62.1	74.3	97	40	746	3.45	0.88	6.07	3
November	77.7	53.8	65.7	93	31	475	1.57	0.11	2.83	2
December	70.7	46.3	58.5	89	19	289	1.26	0.17	1.99	2
Yearly:										
Average	83.8	60.6	72.2	---	---	---	---	---	---	---
Extreme	108	10	---	105	17	---	---	---	---	---
Total	---	---	---	---	---	8,165	30.46	20.73	36.00	36

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 50.0 degrees F)

Table 5.--Freeze Dates in Spring and Fall
(Recorded for the period 1971-2000 at Kingsville, Texas)

Probability	Temperature		
	24°F or lower	28°F or lower	32°F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	February 6	March 6	March 18
2 years in 10 later than--	January 27	February 22	March 9
5 years in 10 later than--	January 2	January 24	February 20
First freezing temperature in fall:			
1 year in 10 earlier than--	December 16	November 29	November 20
2 years in 10 earlier than--	December 27	December 14	November 26
5 years in 10 earlier than--	January 24	January 13	December 9

Table 6.--Growing Season
(Recorded for the period 1971-2000 at Kingsville, Texas)

Probability	Daily Minimum Temperature		
	Number of days higher than 24°F	Number of days higher than 28°F	Number of days higher than 32°F
	Days	Days	Days
9 years in 10	331	292	276
8 years in 10	344	315	284
5 years in 10	> 365	> 365	299
2 years in 10	> 365	> 365	314
1 year in 10	> 365	> 365	322

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 7.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AaA	Aransas clay, 0 to 1 percent slopes, frequently flooded-----	14,293	0.8
AcC	Arenisco fine sand, 1 to 5 percent slopes, very rarely flooded-----	7,741	0.4
AnC	Arenisco-Topo complex, 0 to 5 percent slopes, flooded, frequently ponded-----	17,277	1.0
ArA	Arrada sandy clay loam, 0 to 1 percent slopes, very frequently flooded, frequently ponded-----	33,187	1.9
AsC	Arrada-Lalinda complex, 0 to 5 percent slopes, very frequently flooded, frequently ponded-----	26,780	1.5
BA	Baffin soils, submerged-----	29,220	1.6
BbA	Banquete clay, 0 to 1 percent slopes-----	27,069	1.5
BdA	Barrada clay, 0 to 1 percent slopes, very frequently flooded, occasionally ponded-----	2,897	0.2
BE1	Beaches, sandy, very frequently flooded-----	632	*
BE2	Beaches, gravelly, very frequently flooded-----	942	*
BE3	Beaches, bermed, gravelly, very frequently flooded-----	647	*
BE4	Beaches, bermed, very gravelly, very frequently flooded-----	556	*
BrA	Bordas loamy fine sand, 0 to 1 percent slopes, occasionally ponded-----	7,245	0.4
CaA	Calallen sandy clay loam, 0 to 1 percent slopes-----	1,294	*
CeA	Carreta sandy clay loam, 0 to 1 percent slopes-----	3,927	0.2
ChA	Cayo fine sandy loam, 0 to 1 percent slopes-----	10,033	0.6
CkA	Clareville clay loam, 0 to 1 percent slopes-----	15,349	0.9
CkB	Clareville clay loam, 1 to 3 percent slopes-----	265	*
CmA	Colmena fine sandy loam, 0 to 1 percent slopes-----	11,026	0.6
CmB	Colmena fine sandy loam, 1 to 3 percent slopes-----	27,311	1.5
CnA	Craneil sandy clay loam, 0 to 1 percent slopes-----	41,364	2.3
CnB	Craneil sandy clay loam, 1 to 3 percent slopes-----	1,597	*
CrA	Czar fine sandy loam, 0 to 1 percent slopes-----	12,391	0.7
CrB	Czar fine sandy loam, 1 to 3 percent slopes-----	6,390	0.4
CzA	Czar sandy clay loam, 0 to 1 percent slopes-----	14,943	0.8
DaE	Daggerhill fine sand, 2 to 12 percent slopes, rarely flooded-----	5,334	0.3
DdE	Daggerhill-Mustang complex, 0 to 12 percent slopes, occasionally flooded, occasionally ponded-----	2,213	0.1
DeE	Daggerhill-Sataton complex, 0 to 12 percent slopes, frequently flooded--	1,512	*
DfB	Delfina loamy fine sandy, 0 to 2 percent slopes-----	6,275	0.4
DnB	Delfina fine sandy loam, 0 to 3 percent slopes-----	9,698	0.5
DrA	Dietrich loamy fine sand, 0 to 1 percent slopes, very rarely flooded-----	8,545	0.5
DsB	Dietrich loamy fine sand, 0 to 2 percent slopes, very rarely flooded-----	3,060	0.2
DTE	Dune land, 0 to 5 percent slopes, occasionally flooded-----	1,222	*
DU	Dune land, 5 to 15 percent slopes, occasionally flooded-----	12,554	0.7
DXC	Dune land-Sataton association, 0 to 5 percent slopes, occasionally flooded-----	6,250	0.3
EdA	Edroy clay, 0 to 1 percent slopes, occasionally ponded-----	5,880	0.3
EsA	Estella fine sand, 0 to 1 percent slopes-----	13,897	0.8
FaC	Falfurrias fine sand, 1 to 5 percent slopes-----	42,682	2.4
FaE	Falfurrias fine sand, 5 to 15 percent slopes-----	16,837	0.9
FmC	Falfurrias-Atiras-Medanito complex, 0 to 5 percent slopes-----	35,713	2.0
FoD	Falfurrias-Cayo complex, 0 to 8 percent slopes-----	65,083	3.6
FtD	Falfurrias-Topo complex, 0 to 8 percent slopes, frequently ponded-----	21,955	1.2
GeB	Gertrudis fine sandy loam, 0 to 3 percent slopes-----	11,964	0.7
GhE	Greenhill fine sand, 2 to 12 percent slopes, rarely flooded-----	2,259	0.1
GmE	Greenhill-Mustang complex, 0 to 12 percent slopes, occasionally flooded, occasionally ponded-----	2,201	0.1
GRE	Gullied land-Riverwash complex, frequently flooded-----	8,717	0.5
IcA	Incell clay, 0 to 1 slopes, frequently ponded-----	911	*
LaC	Lalinda fine sandy loam, 1 to 5 percent slopes, very rarely flooded-----	3,273	0.2
LpC	Lopeno-Potrero-Arenisco complex, 0 to 5 percent slopes, very rarely flooded-----	39,640	2.2
LsC	Lopeno-Saucel complex, 0 to 5 percent slopes, rarely flooded, occasionally ponded-----	12,314	0.7
LzC	Lopeno-Sauz complex, 0 to 5 percent slopes, flooded-----	13,299	0.7
MaA	Madre-Malaquite complex, 0 to 1 percent slopes, occasionally flooded, frequently ponded-----	10,339	0.6

Table 7.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
MnB	Madre-Panam complex, 0 to 2 percent slopes, occasionally flooded, frequently ponded-----	4,541	0.3
MoA	Montealto clay, 0 to 1 percent slope, occasionally ponded-----	1,819	0.1
MsA	Mustang fine sand, 0 to 1 percent slopes, occasionally flooded, frequently ponded-----	2,891	0.2
MtB	Mustang-Padre complex, 0 to 2 percent slopes, occasionally flooded, frequently ponded-----	10,097	0.6
MuB	Mustang-Panam complex, 0 to 2 percent slopes, occasionally flooded, frequently ponded-----	9,421	0.5
NaA	Narta loam, 0 to 1 percent slopes, rarely flooded-----	9,855	0.6
NeA	Novillo peat, 0 to 1 percent slopes, rarely flooded, frequently ponded---	1,650	*
NfC	Nueces fine sand, 0 to 5 percent slopes-----	16,692	0.9
NsC	Nueces-Sarita association, 0 to 5 percent slopes-----	5,202	0.3
OfA	Orelia fine sandy loam, 0 to 1 percent slopes-----	13,118	0.7
PaA	Padrones fine sand, 0 to 3 percent slopes-----	114,609	6.4
PbA	Palobia loamy fine sand, 0 to 1 percent slopes-----	9,324	0.5
PbB	Palobia loamy fine sand, 1 to 3 percent slopes-----	110,106	6.2
PeB	Palobia fine sandy loam, 0 to 3 percent slopes-----	19,103	1.1
PfA	Palobia-Colmena complex, 0 to 1 percent slopes-----	14,996	0.8
PfB	Palobia-Colmena complex, 1 to 3 percent slopes-----	24,442	1.4
PgA	Papagua fine sandy loam, 0 to 1 percent slopes, occasionally ponded-----	5,852	0.3
PIT	Pits, quarry-----	660	*
PnC	Point Isabel clay loam, 1 to 5 percent slopes, rarely flooded-----	2,895	0.2
PoB	Portalto fine sand, 0 to 2 percent slopes, rarely flooded-----	604	*
PrC	Potrero-Lopeno-Noria complex, 0 to 5 percent slopes, very rarely flooded, frequently ponded-----	70,012	3.9
PtB	Premont fine sandy loam, 0 to 3 percent slopes-----	11,378	0.6
QuA	Quiteria fine sand, 0 to 1 percent slopes-----	39,136	2.2
RaB	Ramita fine sand, 0 to 2 percent slopes-----	11,372	0.6
RbB	Ramita-Bordas complex, 0 to 2 percent slopes, occasionally ponded-----	11,874	0.7
RoB	Rockport fine sand, 0 to 2 percent slopes, rarely flooded-----	11,063	0.6
SA	Salt flat, very frequently flooded-----	1,562	*
SF	Salt flat, rarely flooded, occasionally ponded-----	5,409	0.3
SnC	Sarita fine sand, 0 to 5 percent slopes-----	69,160	3.9
SrC	Sarita-Cayo complex, 0 to 5 percent slopes-----	38,836	2.2
SsC	Sarita-Topo complex, 0 to 5 percent slopes, frequently ponded-----	23,513	1.3
StA	Sataton fine sand, 0 to 1 percent slopes, frequently flooded-----	52,418	2.9
SuA	Sauce1 fine sandy loam, 0 to 1 percent slope, rarely flooded, occasionally ponded-----	8,403	0.5
SxB	Sauce1-Potrero complex, 0 to 2 percent slopes, rarely flooded, occasionally ponded-----	4,623	0.3
SyA	Sauz loamy fine sand, 0 to 1 percent slopes, rarely flooded-----	27,576	1.5
SzA	Sauz-Sauce1 complex, 0 to 1 percent slopes, occasionally flooded, occasionally ponded-----	42,591	2.4
TaA	Tatton fine sand, 0 to 1 percent slopes, very frequently flooded-----	29,183	1.6
TBA	Tatton-Beaches-Washover fan association, 0 to 1 percent slopes, very frequently flooded-----	2,813	0.2
ToA	Topo fine sandy loam, 0 to 1 percent slopes, rarely flooded, frequently ponded-----	10,777	0.6
TsA	Topo-Sauce1 complex, 0 to 1 percent slopes, rarely flooded, ponded-----	6,895	0.4
TwA	Twinpalms-Yarborough complex, 0 to 3 percent slopes, frequently flooded--	7,860	0.4
VaA	Victine clay loam, 0 to 1 percent slopes-----	17,046	1.0
VcA	Victoria clay, 0 to 1 percent slopes-----	77,398	4.3
VcB	Victoria clay, 1 to 3 percent slopes-----	1,844	0.1
W	Water-----	130,995	7.3
YaA	Yarborough fine sandy loam, 0 to 1 percent slopes, very frequently flooded-----	3,034	0.2
YtC	Yturria fine sandy loam, 1 to 5 percent slopes-----	14,901	0.8
	Total-----	1,787,552	100.0

* Less than 0.1 percent.

Table 8.--Prime and Other Important Farmland

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland. If a soil is prime or important farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map Symbol	Map unit name	Farmland Classification
BbA	Banquete clay, 0 to 1 percent slopes	All areas are prime farmland
CaA	Calallen sandy clay loam, 0 to 1 percent slopes	All areas are prime farmland
CkA	Clareville clay loam, 0 to 1 percent slopes	All areas are prime farmland
CkB	Clareville clay loam, 1 to 3 percent slopes	All areas are prime farmland
CmA	Colmena fine sandy loam, 0 to 1 percent slopes	All areas are prime farmland
CmB	Colmena fine sandy loam, 1 to 3 percent slopes	All areas are prime farmland
CnA	Cranell sandy clay loam, 0 to 1 percent slopes	All areas are prime farmland
CnB	Cranell sandy clay loam, 1 to 3 percent slopes	All areas are prime farmland
CzA	Czar sandy clay loam, 0 to 1 percent slopes	All areas are prime farmland
OfA	Orelia fine sandy loam, 0 to 1 percent slopes	All areas are prime farmland
VcA	Victoria clay, 0 to 1 percent slopes	All areas are prime farmland
VcB	Victoria clay, 1 to 3 percent slopes	All areas are prime farmland
CrA	Czar fine sandy loam, 0 to 1 percent slopes	Prime farmland if irrigated
CrB	Czar fine sandy loam, 1 to 3 percent slopes	Prime farmland if irrigated
DnB	Delfina fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
GeB	Gertrudis fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
PtB	Premont fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
YtC	Yturria fine sandy loam, 1 to 5 percent slopes	Prime farmland if irrigated

Table 9.--Land Capability and Yield per Acre of Crops and Pasture

(Yields in the "N" columns are for nonirrigated areas; those in the "I" columns are for irrigated areas. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability		Corn		Cotton lint		Improved bermudagrass	
	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	AUM	AUM
AaA: Aransas	6w	6w	---	---	---	---	---	---
AcC: Arenisco	7e	7e	---	---	---	---	---	---
AnC: Arenisco Topo	3e 4w	3e 4w	---	---	---	---	---	---
ArA: Arrada	8e	8e	---	---	---	---	---	---
AsC: Arrada Lalinda	8e 3e	8e 3e	---	---	---	---	---	---
BA: Baffin	8w	8w	---	---	---	---	---	---
BbA: Banquete	2w	2w	---	---	400.00	1,100.00	4.00	12.00
BdA: Barrada	8s	8s	---	---	---	---	---	---
BE1: Beaches	---	---	---	---	---	---	---	---
BE2: Beaches	---	---	---	---	---	---	---	---
BE3: Beaches	---	---	---	---	---	---	---	---
BE4: Beaches	---	---	---	---	---	---	---	---
BrA: Bordas	3e	3e	---	---	---	---	---	---
CaA: Calallen	1	1	50.00	100.00	325.00	500.00	9.00	8.00
CeA: Carreta	7s	7s	55.00	100.00	400.00	900.00	5.00	12.00
ChA: Cayo	2e	2e	---	---	---	---	---	---
CkA: Clareville	2e	2e	70.00	---	450.00	---	5.00	---

Table 9.--Land Capability and Yield per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Corn		Cotton lint		Improved bermudagrass	
	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	AUM	AUM
CkB: Clareville	2e	2e	65.00	---	400.00	---	5.00	---
CmA: Colmena	2e	2e	65.00	---	250.00	---	---	---
CmB: Colmena	2e	2e	65.00	---	250.00	---	---	---
CnA: Cranell	1	1	55.00	100.00	400.00	900.00	5.00	12.00
CnB: Cranell	2e	2e	55.00	100.00	400.00	900.00	5.00	12.00
CrA: Czar	1	1	---	---	350.00	---	4.00	---
CrB: Czar	1	1	---	---	325.00	---	3.50	---
CzA: Czar	1	1	---	---	500.00	1,000.00	6.00	12.00
DaE: Daggerhill	7e	7e	---	---	---	---	---	---
DdE: Daggerhill Mustang	7e 6w	7e 6w	---	---	---	---	---	---
DeE: Daggerhill Satatton	7e 8s	7e 8s	---	---	---	---	---	---
DfB: Delfina	2e	2e	---	---	175.00	700.00	2.00	8.00
DnB: Delfina	2e	2e	---	---	250.00	750.00	4.00	12.00
DrA: Dietrich	4s	4s	---	---	---	---	3.00	---
DsB: Dietrich	4e	4e	---	---	---	---	---	---
DTE: Dune land	8s	8s	---	---	---	---	---	---
DU: Dune land	8s	8s	---	---	---	---	---	---
DXC: Dune land Satatton	8s 8s	8s 8s	---	---	---	---	---	---
EdA: Edroy	5w	5w	---	---	---	---	---	---

Table 9.--Land Capability and Yield per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Corn		Cotton lint		Improved bermudagrass	
	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	AUM	AUM
EsA: Estella	6e	4e	---	---	---	---	---	---
FaC: Falfurrias	3e	2e	---	---	---	---	---	---
FaE: Falfurrias	4e	3e	---	---	---	---	---	---
FmC: Falfurrias Atiras Medanito	3e 3e 3e	2e 2e 2e	---	---	---	---	---	---
FoD: Falfurrias Cayo	4e 2e	3e 2e	---	---	---	---	---	---
FtD: Falfurrias Topo	4e 4e	3e 4e	---	---	---	---	---	---
GeB: Gertrudis	2e	2e	---	---	380.00	950.00	---	12.00
GhE: Greenhill	7e	7e	---	---	---	---	---	---
GmE: Greenhill Mustang	7e 6w	7e 6w	---	---	---	---	---	---
GRE: Riverwash Gullied land	7e ---	--- ---	---	---	---	---	---	---
IcA: Incell	3w	3w	---	---	---	---	---	---
LaC: Lalinda	3e	3e	---	---	---	---	---	---
LpC: Lopeno Potrero Arenisco	3e 3e 3e	3e 3e 3e	---	---	---	---	---	---
LsC: Lopeno Sauce1	3e 7e	3e 7e	---	---	---	---	---	---
LzC: Lopeno Sauz	3e 4e	3e 3e	---	---	---	---	---	---
MaA: Madre Malaquite	6w 8s	6w 8s	---	---	---	---	---	---

Table 9.--Land Capability and Yield per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Corn		Cotton lint		Improved bermudagrass	
	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	AUM	AUM
MnB: Madre Panam	6w 2w	6w 2w	---	---	---	---	---	---
MoA: Montealto	4w	4w	---	---	---	---	4.00	---
MsA: Mustang	5e	4e	---	---	---	---	---	---
MtB: Mustang Padre	6w 7e	6w 7e	---	---	---	---	---	---
MuB: Mustang Panam	6w 7e	6w 7e	---	---	---	---	---	---
NaA: Narta	6s	6s	---	---	---	---	---	---
NeA: Novillo	6w	6w	---	---	---	---	---	---
NfC: Nueces	4e	4e	---	---	---	---	---	---
NsC: Nueces Sarita	4e 6e	4e 4e	---	---	---	---	---	---
OfA: Orelia	2s	2s	50.00	100.00	325.00	500.00	9.00	8.00
PaA: Padrones	4e	2e	---	---	---	---	3.00	---
PbA: Palobia	4e	2e	---	---	300.00	---	2.50	---
PbB: Palobia	4e	2e	---	---	300.00	---	2.50	---
PeB: Palobia	4e	2e	---	---	---	450.00	---	8.00
PfA: Palobia Colmena	4s 2e	3e 2e	---	---	---	450.00	---	8.00
PfB: Palobia Colmena	4s 2e	3e 2e	---	---	---	450.00	---	8.00
PgA: Papagua	3w	3w	---	---	250.00	---	3.00	---
PIT: Pits, quarry	---	---	---	---	---	---	---	---

Table 9.--Land Capability and Yield per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Corn		Cotton lint		Improved bermudagrass	
	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	AUM	AUM
PnC: Point Isabel	6e	6e	---	---	---	---	3.00	---
PoB: Portalto	4e	4e	---	---	---	---	3.00	10.00
PrC: Potrero Lopeno Noria	3e 3e 6w	3e 3e 6w	---	---	---	---	2.50	---
PtB: Premont	3e	3e	---	---	250.00	750.00	4.00	12.00
QuA: Quiteria	4s	4s	---	---	---	---	---	---
RaB: Ramita	4s	4s	---	---	---	---	---	---
RbB: Ramita Bordas	4s 3e	4s 3e	---	---	---	---	---	---
RoB: Rockport	6e	6e	---	---	---	---	5.00	---
SA: Salt flats, very frequently flooded	---	---	---	---	---	---	---	---
SF: Salt flats, ponded	---	---	---	---	---	---	---	---
SnC: Sarita	3e	3e	---	---	---	---	3.00	10.00
SrC: Sarita Cayo	3e 2e	3e 2e	---	---	---	---	3.00	10.00
SsC: Sarita Topo	3e 4w	3e 4w	---	---	---	---	3.00	10.00
StA: Satatton	8e	8e	---	---	---	---	---	---
SuA: Sauce1	7e	7e	---	---	---	---	---	---
SxB: Sauce1 Potrero	7s 3e	7s 3e	---	---	---	---	---	---
SyA: Sauz	3w	3w	---	---	---	---	4.00	---

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Table 9.--Land Capability and Yield per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Corn		Cotton lint		Improved bermudagrass	
	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	AUM	AUM
SzA: Sauz Sauce1	3w 7s	3w 7s	---	---	---	---	4.00	---
TaA: Tatton	8e	8e	---	---	---	---	---	---
TBA: Tatton Beaches, washover fan	8s 8s	--- ---	---	---	---	---	---	---
ToA: Topo	4e	4e	---	---	---	---	---	---
TsA: Topo Sauce1	4e 7e	4e 7e	---	---	---	---	---	---
TwA: Twinpalms Yarborough	6e 6e	6e 6e	---	---	---	---	5.00	---
VaA: Victine	4s	4s	60.00	120.00	450.00	1,200.00	---	12.00
VcA: Victoria	2s	2s	60.00	120.00	450.00	1,200.00	---	12.00
VcB: Victoria	2e	2e	55.00	110.00	350.00	1,000.00	---	12.00
W: Water	---	---	---	---	---	---	---	---
YaA: Yarborough	6w	---	---	---	---	---	---	---
YtC: Yturria	2e	2e	---	---	---	950.00	5.00	12.00

Table 10.--Rangeland Productivity

(Only the soils that support rangeland vegetation suitable for grazing are rated.)

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Normal year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
AaA: Aransas-----	Salt Marsh 25-35" Pz	7,000	5,000	2,000
AcC: Arenisco-----	Coastal Sand 25-35" Pz	4,500	3,500	1,500
AnC: Arenisco-----	Coastal Sand 25-35" Pz	4,500	3,500	1,500
Topo-----	Salty Prairie 26-48" Pz	6,000	4,000	2,000
ArA: Arrada-----	Wind Tidal Flat 25-35" Pz	0	0	0
AsC: Arrada-----	Wind Tidal Flat 25-35" Pz	0	0	0
Lalinda-----	Coastal Ridge 25-35" Pz	5,000	3,000	1,000
BA: Baffin-----	Subaqueous Grass Flat	50	25	0
BbA: Banquete-----	Blackland 24-44" Pz	5,000	4,000	2,500
BdA: Barrada-----	Wind Tidal Flat 25-35" Pz	0	0	0
BrA: Bordas-----	Lakebed 20-35" Pz	5,200	3,500	2,500
CaA: Calallen-----	Clay Loam 25-35" Pz	5,000	4,000	2,500
CeA: Carreta-----	Salty Prairie 26-48" Pz	4,000	3,000	2,000
ChA: Cayo-----	Sandy Loam 25-35" Pz	4,500	3,500	2,500
CKA: Clareville-----	Clay Loam 20-25" Pz	4,000	3,000	2,000
CkB: Clareville-----	Clay Loam 20-25" Pz	4,000	3,000	2,000
CmA: Colmena-----	Sandy Loam 25-35" Pz	5,400	4,800	3,000
CmB: Colmena-----	Sandy Loam 25-35" Pz	5,400	4,800	3,000
CnA: Crane11-----	Blackland 24-44" Pz	4,000	3,500	2,500
CnB: Crane11-----	Blackland 24-44" Pz	4,000	3,500	2,500

Table 10.--Rangeland Productivity--Continued

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Normal year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
CrA: Czar-----	Sandy Loam 25-35" Pz	5,000	4,000	3,000
CrB: Czar-----	Sandy Loam 25-35" Pz	5,000	4,000	3,000
CzA: Czar-----	Clay Loam 20-25" Pz	6,000	5,000	2,500
DaE: Daggerhill-----	Coastal Dune 25-35" Pz	3,500	2,000	1,000
DdE: Daggerhill-----	Coastal Dune 25-35" Pz	3,500	2,000	1,000
Mustang-----	Low Coastal Sand 25-35" Pz	4,000	3,000	2,000
DeE: Daggerhill-----	Coastal Dune 25-35" Pz	3,500	2,000	1,000
Satatton-----	Wind Tidal Flat 25-35" Pz	10	0	0
DfB: Delfina-----	Loamy Sand 25-35" Pz	4,500	3,800	2,000
DnB: Delfina-----	Sandy Loam 25-35" Pz	3,500	3,000	1,000
DrA: Dietrich-----	Salty Prairie 26-48" Pz	5,500	4,500	3,500
DsB: Dietrich-----	Sandy 25-35" Pz	6,000	5,000	3,200
DXC: Satatton-----	Wind Tidal Flat 25-35" Pz	10	0	0
EdA: Edroy-----	Lakebed 25-35" Pz	5,000	4,000	3,000
EsA: Estella-----	Sandy 20-28" Pz	5,000	4,000	2,000
FaC: Falfurrias-----	Sand Hills 20-28" Pz	4,500	3,500	1,500
FaE: Falfurrias-----	Sand Hills 20-28" Pz	4,500	3,500	1,500
FmC: Falfurrias-----	Sand Hills 20-28" Pz	4,500	3,500	1,500
Atiras-----	Sandy 20-28" Pz	5,000	4,000	2,000
Medanito-----	Sandy 20-28" Pz	5,000	4,000	2,000
FoD: Falfurrias-----	Sand Hills 20-28" Pz	4,500	3,500	1,500
Cayo-----	Sandy Loam 25-35" Pz	4,500	3,500	2,500

Table 10.--Rangeland Productivity--Continued

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Normal year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
FtD: Falfurrias-----	Sand Hills 20-28" Pz	4,500	3,500	1,500
Topo-----	Salty Prairie 26-48" Pz	6,000	4,000	2,000
GeB: Gertrudis-----	Gray Sandy Loam 20-25" Pz	4,500	3,500	2,500
GhE: Greenhill-----	Coastal Dune 25-35" Pz	3,500	2,000	1,000
GmE: Greenhill-----	Coastal Dune 25-35" Pz	3,500	2,000	1,000
Mustang-----	Low Coastal Sand 25-35" Pz	4,000	3,000	2,000
IcA: Incell-----	Fresh Marsh	7,000	5,000	4,000
LaC: Lalinda-----	Coastal Ridge 25-35" Pz	5,000	3,000	1,000
LpC: Lopeno-----	Low Coastal Sand 25-35" Pz	4,000	3,000	2,000
Potrero-----	Low Coastal Sand 25-35" Pz	4,500	3,500	2,500
Arenisco-----	Coastal Sand 25-35" Pz	4,500	3,500	1,500
LsC: Lopeno-----	Low Coastal Sand 25-35" Pz	4,000	3,000	2,000
Sauce1-----	Salt Flat 25-35" Pz	3,500	2,500	1,000
LzC: Lopeno-----	Low Coastal Sand 25-35" Pz	4,000	3,000	2,000
Sauz-----	Sandy Flat 22-35" Pz	5,000	4,000	2,000
MaA: Madre-----	Firm Brackish Marsh 25-35" Pz	4,000	3,000	2,000
Malaquite-----	Salt Flat 25-35" Pz	1,500	1,000	500
MnB: Madre-----	Firm Brackish Marsh 25-35" Pz	4,000	3,000	2,000
Panam-----	Coastal Sand 25-35" Pz	4,500	3,500	1,500
MoA: Montealto-----	Lakebed 20-35" Pz	5,000	3,500	2,000
MsA: Mustang-----	Low Coastal Sand 25-35" Pz	4,000	3,000	2,000
MtB: Mustang-----	Low Coastal Sand 25-35" Pz	4,000	3,000	2,000
Padre-----	Coastal Sand 25-35" Pz	4,500	3,500	1,500

Table 10.--Rangeland Productivity--Continued

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Normal year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
MuB: Mustang-----	Low Coastal Sand 25-35" Pz	4,000	3,000	2,000
Panam-----	Coastal Sand 25-35" Pz	4,500	3,500	1,500
NaA: Narta-----	Salty Prairie 26-48" Pz	7,000	5,000	2,000
NeA: Novillo-----	Coastal Swale 25-35" Pz	4,000	3,000	2,000
NfC: Nueces-----	Sandy 20-28" Pz	6,000	5,000	3,200
NsC: Nueces-----	Sandy 20-28" Pz	6,000	5,000	3,200
Sarita-----	Sandy 20-28" Pz	5,000	4,000	2,000
OfA: Orelia-----	Claypan Prairie 28-44" Pz	5,000	4,000	2,500
PaA: Padrones-----	Sandy 20-28" Pz	5,500	4,500	3,000
PbA: Palobia-----	Loamy Sand 25-35" Pz	3,500	3,000	2,000
PbB: Palobia-----	Loamy Sand 25-35" Pz	3,500	3,000	2,000
PeB: Palobia-----	Tight Sandy Loam 25-35" Pz	3,500	3,000	2,000
PfA: Palobia-----	Tight Sandy Loam 25-35" Pz	3,500	3,000	2,000
Colmena-----	Sandy Loam 25-35" Pz	5,400	4,800	3,000
PfB: Palobia-----	Tight Sandy Loam 25-35" Pz	3,500	3,000	2,000
Colmena-----	Sandy Loam 25-35" Pz	5,400	4,800	3,000
PgA: Papagua-----	Lakebed 20-35" Pz	5,200	3,500	2,500
PnC: Point Isabel-----	Coastal Ridge 25-35" Pz	5,000	3,000	1,000
PoB: Portalto-----	Coastal Sand 25-35" Pz	5,000	4,000	2,000
PrC: Potrero-----	Low Coastal Sand 25-35" Pz	4,500	3,500	2,500
Lopeno-----	Low Coastal Sand 25-35" Pz	4,000	3,000	2,000
Noria-----	Salt Marsh 25-35" Pz	2,500	2,000	1,500

Table 10.--Rangeland Productivity--Continued

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Normal year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
PtB: Premont-----	Sandy Loam 25-35" Pz	3,500	3,000	1,000
QuA: Quiteria-----	Loamy Sand 25-35" Pz	3,800	3,000	1,800
RaB: Ramita-----	Salty Prairie 25-35" Pz	5,500	4,500	3,500
RbB: Ramita-----	Salty Prairie 25-35" Pz	5,500	4,500	3,500
Bordas-----	Lakebed 20-35" Pz	5,200	3,500	2,500
RoB: Rockport-----	Coastal Sand 25-35" Pz	4,500	3,000	2,000
SnC: Sarita-----	Sandy 20-28" Pz	5,000	4,000	2,000
SrC: Sarita-----	Sandy 20-28" Pz	5,000	4,000	2,000
Cayo-----	Sandy Loam 25-35" Pz	4,500	3,500	2,500
SsC: Sarita-----	Sandy 20-28" Pz	5,000	4,000	2,000
Topo-----	Salty Prairie 26-48" Pz	6,000	4,000	2,000
StA: Satatton-----	Wind Tidal Flat 25-35" Pz	15	5	0
SuA: Sauce1-----	Salt Flat 25-35" Pz	3,500	2,500	1,000
SxB: Sauce1-----	Salt Flat 25-35" Pz	3,500	2,500	1,000
Potrero-----	Low Coastal Sand 25-35" Pz	4,500	3,500	2,500
SyA: Sauz-----	Sandy Flat 22-35" Pz	5,000	4,000	2,000
SzA: Sauz-----	Sandy Flat 22-35" Pz	5,000	4,000	2,000
Sauce1-----	Salt Flat 25-35" Pz	3,500	2,500	1,000
TaA: Tatton-----	Wind Tidal Flat 25-35" Pz	15	5	0
TBA: Tatton-----	Wind Tidal Flat 25-35" Pz	10	0	0
ToA: Topo-----	Salty Prairie 26-48" Pz	6,000	4,000	2,000

Table 10.--Rangeland Productivity--Continued

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Normal year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
TsA: Topo-----	Salty Prairie 26-48" Pz	6,000	4,000	2,000
Sauce1-----	Salt Flat 25-35" Pz	3,500	2,500	1,000
TwA: Twinpalms-----	Coastal Sand 25-35" Pz	3,000	2,000	1,000
Yarborough-----	Salt Flat 25-35" Pz	1,500	1,000	500
VaA: Victine-----	Salty Prairie 26-48" Pz	5,000	4,000	2,500
VcA: Victoria-----	Blackland 24-44" Pz	5,000	4,000	2,500
VcB: Victoria-----	Blackland 24-44" Pz	5,000	4,000	2,500
YaA: Yarborough-----	Salt Flat 25-35" Pz	1,500	1,000	500
YtC: Yturria-----	Sandy Loam 25-35" Pz	5,000	3,500	2,000

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 11.--Camp Areas, Picnic Areas, and Playgrounds

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited Sodium content	1.00	Very limited Slow water movement	1.00	Very limited Slow water movement	1.00
		Flooding	1.00	Sodium content	1.00	Sodium content	1.00
		Slow water movement	1.00	Too clayey	1.00	Flooding	1.00
		Salinity	1.00	Salinity	1.00	Too clayey	1.00
		Too clayey	1.00	Dusty	0.47	Salinity	1.00
AcC: Arenisco	85	Very limited Flooding	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
		Too sandy	1.00			Slope	0.12
AnC: Arenisco	70	Very limited Flooding	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
		Too sandy	1.00			Slope	0.12
Topo	20	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Flooding	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Salinity	0.25	Salinity	0.25
		Salinity	0.25	Dusty	0.04		
ArA: Arrada	90	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Salinity	1.00	Sodium content	1.00	Salinity	1.00
		Flooding	1.00	Salinity	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.60	Ponding	1.00
AsC: Arrada	55	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Salinity	1.00	Sodium content	1.00	Salinity	1.00
		Flooding	1.00	Salinity	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.60	Ponding	1.00
LaLinda	35	Very limited Sodium content	1.00	Very limited Sodium content	1.00	Very limited Sodium content	1.00
		Flooding	1.00	Salinity	0.13	Salinity	0.13
		Salinity	0.13	Dusty	0.12	Slope	0.12
		Dusty	0.12				

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BA: Baffin	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Salinity	1.00	Sodium content	1.00	Salinity	1.00
		Ponding	1.00	Salinity	1.00	Ponding	1.00
Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26		
BbA: Banquete	90	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Slow water movement	0.41	Slow water movement	0.41	Slow water movement	0.41
Dusty	0.34	Dusty	0.34				
BdA: Barrada	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Too clayey	1.00	Slow water movement	1.00
		Sodium content	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Flooding	1.00	Slow water movement	1.00	Sodium content	1.00
Ponding	1.00	Sodium content	1.00	Salinity	1.00		
BE1: Beaches	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Salinity	1.00	Sodium content	1.00	Sodium content	1.00
		Flooding	1.00	Salinity	1.00	Salinity	1.00
Too sandy	1.00	Flooding	0.60	Flooding	1.00		
BE2: Beaches	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Salinity	1.00	Sodium content	1.00	Sodium content	1.00
		Flooding	1.00	Salinity	1.00	Salinity	1.00
Too sandy	1.00	Flooding	0.60	Flooding	1.00		

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BE3: Beaches	90	Very limited Depth to saturated zone Sodium content Salinity Flooding Too sandy	1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Depth to saturated zone Sodium content Salinity Flooding	1.00 1.00 1.00 1.00 1.00 0.60	Very limited Depth to saturated zone Too sandy Sodium content Salinity Flooding	1.00 1.00 1.00 1.00 1.00 1.00
BE4: Beaches	90	Very limited Depth to saturated zone Sodium content Salinity Flooding Too sandy	1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Depth to saturated zone Sodium content Salinity Flooding	1.00 1.00 1.00 1.00 1.00 0.60	Very limited Depth to saturated zone Too sandy Sodium content Salinity Flooding	1.00 1.00 1.00 1.00 1.00 1.00
BrA: Bordas	95	Very limited Depth to saturated zone Ponding Slow water movement Too sandy	1.00 1.00 0.60 0.49	Very limited Ponding Depth to saturated zone Slow water movement Too sandy	1.00 1.00 0.60 0.49	Very limited Depth to saturated zone Ponding Slow water movement Too sandy	1.00 1.00 0.60 0.49
CaA: CaAllen	85	Somewhat limited Dusty	0.13	Somewhat limited Dusty	0.13	Not limited	
CeA: Carreta	95	Very limited Sodium content Salinity Slow water movement Dusty	1.00 1.00 0.41 0.37	Very limited Sodium content Salinity Slow water movement Dusty	1.00 1.00 0.41 0.37	Very limited Sodium content Salinity Slow water movement	1.00 1.00 0.41
ChA: Cayo	90	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content	1.00
CkA: Clareville	90	Somewhat limited Dusty	0.38	Somewhat limited Dusty	0.38	Not limited	
CkB: Clareville	90	Somewhat limited Dusty	0.38	Somewhat limited Dusty	0.38	Not limited	

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CmA: Colmena	90	Somewhat limited Dusty	0.09	Somewhat limited Dusty	0.09	Not limited	
CmB: Colmena	90	Somewhat limited Dusty	0.09	Somewhat limited Dusty	0.09	Not limited	
CnA: Cranell	85	Very limited Sodium content Slow water movement Dusty	1.00 0.41 0.32	Very limited Sodium content Slow water movement Dusty	1.00 0.41 0.32	Very limited Sodium content Slow water movement	1.00 0.41
CnB: Cranell	90	Very limited Sodium content Slow water movement Dusty	1.00 0.41 0.32	Very limited Sodium content Slow water movement Dusty	1.00 0.41 0.32	Very limited Sodium content Slow water movement	1.00 0.41
CrA: Czar	90	Somewhat limited Dusty	0.08	Somewhat limited Dusty	0.08	Not limited	
CrB: Czar	90	Somewhat limited Dusty	0.08	Somewhat limited Dusty	0.08	Not limited	
CzA: Czar	90	Somewhat limited Dusty	0.12	Somewhat limited Dusty	0.12	Not limited	
DaE: Daggerhill	86	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 1.00
DdE: Daggerhill	50	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 1.00
Mustang	41	Very limited Depth to saturated zone Flooding Ponding Slow water movement Too sandy	1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00 1.00	Very limited Slow water movement Depth to saturated zone Too sandy Ponding Flooding	1.00 1.00 1.00 1.00 0.60

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DeE: Daggerhill	45	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.88
Satatton	40	Very limited Depth to saturated zone Sodium content Salinity Flooding Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Depth to saturated zone Slow water movement Sodium content Salinity	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Slow water movement Depth to saturated zone Too sandy Sodium content Salinity	1.00 1.00 1.00 1.00 1.00 1.00
DfB: DeIrina	90	Somewhat limited Dusty	0.06	Somewhat limited Dusty	0.06	Not limited	
DnB: DeIrina	95	Somewhat limited Dusty	0.05	Somewhat limited Dusty	0.05	Not limited	
DrA: Dietrich	90	Very limited Sodium content Flooding Slow water movement Too sandy Depth to saturated zone	1.00 1.00 0.94 0.94 0.94 0.81	Very limited Sodium content Slow water movement Too sandy Depth to saturated zone	1.00 0.94 0.94 0.48	Very limited Sodium content Slow water movement Too sandy Depth to saturated zone	1.00 0.94 0.94 0.81
DsB: Dietrich	90	Very limited Flooding Too sandy Sodium content Slow water movement Depth to saturated zone	1.00 1.00 1.00 0.81 0.81	Very limited Too sandy Sodium content Slow water movement Depth to saturated zone	1.00 1.00 0.81 0.48	Very limited Too sandy Sodium content Slow water movement Depth to saturated zone	1.00 1.00 0.81 0.81
DTE: Dune land	95	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Flooding Slope	1.00 0.60 0.12

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DU: Dune land	95	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope Flooding	1.00 1.00 0.60
DXC: Dune land	55	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Flooding Slope	1.00 0.60 0.12
Satatton	42	Very limited Depth to saturated zone Sodium content Salinity Flooding Slow water movement	1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Depth to saturated zone Slow water movement Sodium content Salinity	1.00 1.00 1.00 1.00 1.00	Very limited Slow water movement Depth to saturated zone Too sandy Sodium content Salinity	1.00 1.00 1.00 1.00 1.00
EdA: Edroy	95	Very limited Depth to saturated zone Ponding Too clayey Dusty Slow water movement	1.00 1.00 0.50 0.46 0.45	Very limited Ponding Depth to saturated zone Too clayey Dusty Slow water movement	1.00 1.00 0.50 0.46 0.45	Very limited Depth to saturated zone Ponding Too clayey Slow water movement	1.00 1.00 0.50 0.45
EsA: Estella	80	Very limited Too sandy Depth to saturated zone	1.00 0.39	Very limited Too sandy Depth to saturated zone	1.00 0.19	Very limited Too sandy Depth to saturated zone	1.00 0.39
FaC: Falfurrias	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.50
FaE: Falfurrias	90	Very limited Too sandy Slope	1.00 0.16	Very limited Too sandy Slope	1.00 0.16	Very limited Too sandy Slope	1.00 1.00
FmC: Falfurrias	45	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.12

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Atras	30	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
Medanito	20	Very limited Sodium content Too sandy	1.00 1.00	Very limited Too sandy Sodium content	1.00 1.00	Very limited Too sandy Sodium content	1.00 1.00
FoD: Falfurrias	60	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.03
Cayo	30	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content	1.00
FtD: Falfurrias	60	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.88
Topo	30	Very limited Depth to saturated zone Sodium content Ponding Salinity Dusty	1.00 1.00 1.00 0.25 0.04	Very limited Ponding Depth to saturated zone Sodium content Salinity Dusty	1.00 1.00 1.00 0.25 0.04	Very limited Depth to saturated zone Sodium content Ponding Salinity	1.00 1.00 1.00 0.25
GeB: Gertrudis	90	Somewhat limited Dusty	0.08	Somewhat limited Dusty	0.08	Not limited	
GhE: Greenhill	85	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 1.00
GmE: Greenhill	50	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 1.00
Mustang	41	Very limited Depth to saturated zone Flooding Ponding Slow water movement Too sandy	1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00 1.00	Very limited Slow water movement Depth to saturated zone Too sandy Ponding Flooding	1.00 1.00 1.00 1.00 0.60

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Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GRE: Riverwash	55	Not rated		Not rated		Not rated	
Gullied land	35	Not rated		Not rated		Not rated	
IcA: Incell	90	Very limited Depth to saturated zone Ponding Slow water movement Sodium content Too clayey	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Slow water movement Too clayey Sodium content	1.00 1.00 1.00 1.00 1.00	Very limited Slow water movement Depth to saturated zone Ponding Too clayey Sodium content	1.00 1.00 1.00 1.00 1.00
LaC: LaLinda	90	Very limited Sodium content Flooding Salinity Dusty	1.00 1.00 0.13 0.12	Very limited Sodium content Salinity Dusty	1.00 0.13 0.12	Very limited Sodium content Salinity Slope	1.00 0.13 0.12
LpC: Lopeno	40	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.12
Potrero	28	Very limited Flooding Too sandy Depth to saturated zone	1.00 1.00 0.39	Very limited Too sandy Depth to saturated zone	1.00 0.19	Very limited Too sandy Depth to saturated zone	1.00 0.39
Arenisco	22	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.12
LsC: Lopeno	55	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.12
Sauce1	40	Very limited Depth to saturated zone Salinity Flooding Ponding Dusty	1.00 1.00 1.00 1.00 1.00 0.03	Very limited Ponding Depth to saturated zone Salinity Dusty	1.00 1.00 1.00 1.00 0.03	Very limited Depth to saturated zone Salinity Ponding	1.00 1.00 1.00

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LzC: Lopeno	56	Very limited		Very limited		Very limited	
		Flooding Too sandy	1.00 1.00	Too sandy	1.00	Too sandy Slope	1.00 0.12
Sauz	35	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Flooding	1.00	Too sandy	0.96	Depth to saturated zone	0.98
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Too sandy	0.96
		Too sandy	0.96	Slow water movement	0.26	Slow water movement	0.26
MaA: Madre	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Too sandy	1.00	Slow water movement	1.00
		Sodium content	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Ponding	1.00	Slow water movement	1.00	Sodium content	1.00
Malaquite	39	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Too sandy	1.00	Slow water movement	1.00
		Sodium content	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Flooding	1.00	Slow water movement	1.00	Sodium content	1.00
MnB: Madre	48	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Too sandy	1.00	Slow water movement	1.00
		Sodium content	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Ponding	1.00	Slow water movement	1.00	Sodium content	1.00
		Slow water movement	1.00	Sodium content	1.00	Ponding	1.00

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Panam	43	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy Flooding	1.00 0.60
MoA: Montealto	90	Very limited Depth to saturated zone Ponding Sodium content Salinity Too clayey	1.00 1.00 1.00 0.50 0.50	Very limited Ponding Depth to saturated zone Sodium content Salinity Too clayey	1.00 1.00 1.00 0.50 0.50	Very limited Depth to saturated zone Ponding Sodium content Salinity Too clayey	1.00 1.00 1.00 0.50 0.50
MSA: Mustang	85	Very limited Depth to saturated zone Flooding Ponding Slow water movement Too sandy	1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00 1.00	Very limited Slow water movement Depth to saturated zone Too sandy Ponding Flooding	1.00 1.00 1.00 1.00 0.60
MtB: Mustang	49	Very limited Depth to saturated zone Flooding Ponding Slow water movement Too sandy	1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00 1.00	Very limited Slow water movement Depth to saturated zone Too sandy Ponding Flooding	1.00 1.00 1.00 1.00 0.60
Padre	42	Very limited Flooding Slow water movement Too sandy	1.00 1.00 1.00	Very limited Too sandy Slow water movement	1.00 1.00	Very limited Slow water movement Too sandy Flooding	1.00 1.00 0.60
MuB: Mustang	50	Very limited Depth to saturated zone Flooding Ponding Slow water movement Too sandy	1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00 1.00	Very limited Slow water movement Depth to saturated zone Too sandy Ponding Flooding	1.00 1.00 1.00 1.00 0.60

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Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Panam	40	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00 1.00	Very limited Too sandy Flooding	1.00 0.60
NaA: Narta	90	Very limited Depth to saturated zone Sodium content Flooding Slow water movement Dusty	1.00 1.00 1.00 1.00 1.00 0.29	Very limited Depth to saturated zone Sodium content Slow water movement Dusty	1.00 1.00 1.00 1.00 0.29	Very limited Depth to saturated zone Sodium content Slow water movement	1.00 1.00 1.00 1.00
NeA: Novillo	88	Very limited Depth to saturated zone Flooding Ponding Slow water movement Too sandy	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00 1.00 1.00	Very limited Slow water movement Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00 1.00
NfC: Nueces	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
NsC: Nueces	65	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
Sarita	25	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
OfA: Orelia	95	Very limited Sodium content Slow water movement Too sandy	1.00 0.39 0.11	Very limited Sodium content Slow water movement Too sandy	1.00 0.39 0.11	Very limited Sodium content Slow water movement Too sandy	1.00 0.39 0.11
PaA: Padrones	90	Very limited Sodium content Too sandy	1.00 1.00	Very limited Too sandy Sodium content	1.00 1.00	Very limited Too sandy Sodium content	1.00 1.00
PbA: PaLobia	90	Very limited Sodium content Too sandy	1.00 0.39	Very limited Sodium content Too sandy	1.00 0.39	Very limited Sodium content Too sandy	1.00 0.39

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PbB: Palobia	90	Very limited Sodium content Too sandy	1.00 0.39	Very limited Sodium content Too sandy	1.00 0.39	Very limited Sodium content Too sandy	1.00 0.39
PeB: Palobia	90	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content	1.00
PfA: Palobia	55	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content	1.00
Colmena	35	Somewhat limited Dusty	0.09	Somewhat limited Dusty	0.09	Not limited	
PfB: Palobia	55	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content	1.00
Colmena	35	Somewhat limited Dusty	0.09	Somewhat limited Dusty	0.09	Not limited	
PgA: Papagua	90	Very limited Depth to saturated zone Ponding Slow water movement Dusty	1.00 1.00 0.94 0.12	Very limited Ponding Depth to saturated zone Slow water movement Dusty	1.00 1.00 0.94 0.12	Very limited Depth to saturated zone Ponding Slow water movement	1.00 1.00 0.94
PIT: Pits, quarry	90	Not rated		Not rated		Not rated	
PnC: Point Isabel	90	Very limited Sodium content Flooding Salinity Dusty Slow water movement	1.00 1.00 0.50 0.41 0.39	Very limited Sodium content Salinity Dusty Slow water movement	1.00 0.50 0.41 0.39	Very limited Sodium content Slope Salinity Slow water movement	1.00 0.88 0.50 0.39
PoB: Portalto	90	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PrC: Potrero	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Too sandy	1.00	Too sandy	1.00
		Too sandy	1.00	Depth to saturated zone	0.19	Depth to saturated zone	0.39
		Depth to saturated zone	0.39				
Lopeno	33	Very limited		Very limited		Very limited	
		Flooding	1.00	Too sandy	1.00	Too sandy	1.00
Noria	17	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Ponding	1.00	Too sandy	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Ponding	1.00	Sodium content	1.00	Ponding	1.00
		Too sandy	1.00	Salinity	1.00	Salinity	1.00
PtB: Premont	90	Somewhat limited Dusty	0.10	Somewhat limited Dusty	0.10	Not limited	
QuA: Quiteria	90	Very limited Sodium content	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
RaB: Ramita	85	Too sandy	1.00	Sodium content	1.00	Sodium content	1.00
		Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
RbB: Ramita	60	Too sandy	0.57	Too sandy	0.57	Too sandy	0.57
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
		Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Bordas	35	Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Too sandy	0.57	Too sandy	0.57	Too sandy	0.57
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
		Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
		Too sandy	0.49	Too sandy	0.49	Too sandy	0.49

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RoB: Rockport	90	Very limited Flooding Too sandy	1.00 1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
SA: Salt flats, very frequently flooded	90	Not rated		Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated		Not rated	
SnC: Sarita	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
SrC: Sarita	70	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.12
Cayo	20	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content Dusty	1.00 0.06	Very limited Sodium content	1.00
SsC: Sarita	75	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.12
Topo	20	Very limited Depth to saturated zone Sodium content Ponding Salinity Dusty	1.00 1.00 1.00 0.25 0.04	Very limited Ponding Depth to saturated zone Sodium content Salinity Dusty	1.00 1.00 1.00 0.25 0.04	Very limited Depth to saturated zone Sodium content Ponding Salinity	1.00 1.00 1.00 0.25
StA: Satatton	90	Very limited Depth to saturated zone Sodium content Salinity Flooding Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Too sandy Depth to saturated zone Slow water movement Sodium content Salinity	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Slow water movement Depth to saturated zone Too sandy Sodium content Salinity	1.00 1.00 1.00 1.00 1.00

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SxB: Sauce1	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Depth to saturated zone	1.00	Salinity	1.00
		Flooding	1.00	Salinity	1.00	Ponding	1.00
		Ponding Dusty	1.00 0.03	Dusty	0.03		
Potrero	25	Very limited		Very limited		Very limited	
		Flooding	1.00	Too sandy	1.00	Too sandy	1.00
		Too sandy	1.00	Depth to saturated zone	0.19	Depth to saturated zone	0.39
		Depth to saturated zone	0.39				
SyA: Sauz	90	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Flooding	1.00	Too sandy	0.96	Depth to saturated zone	0.98
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Too sandy	0.96
		Too sandy	0.96	Slow water movement	0.26	Slow water movement	0.26
		Slow water movement	0.26				
SzA: Sauz	50	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Flooding	1.00	Too sandy	0.96	Depth to saturated zone	0.98
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Too sandy	0.96
		Too sandy	0.96	Slow water movement	0.26	Slow water movement	0.26
		Slow water movement	0.26				
Sauce1	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Depth to saturated zone	1.00	Salinity	1.00
		Flooding	1.00	Salinity	1.00	Ponding	1.00
		Ponding Dusty	1.00 0.03	Dusty	0.03		

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TaA: Tatton	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slow water movement	1.00
		Sodium content	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Sodium content	1.00	Sodium content	1.00
		Flooding	1.00	Salinity	1.00	Salinity	1.00
		Slow water movement	1.00	Too sandy	0.81	Flooding	1.00
TBA: Tatton	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Too sandy	1.00	Slow water movement	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Slow water movement	1.00	Too sandy	1.00
		Flooding	1.00	Sodium content	1.00	Sodium content	1.00
		Slow water movement	1.00	Salinity	1.00	Salinity	1.00
Beaches, washover fan	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Too sandy	1.00	Slow water movement	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Slow water movement	1.00	Too sandy	1.00
		Flooding	1.00	Sodium content	1.00	Sodium content	1.00
		Slow water movement	1.00	Salinity	1.00	Salinity	1.00
ToA: Topo	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Flooding	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Salinity	0.25	Salinity	0.25
		Salinity	0.25	Dusty	0.04		
TsA: Topo	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Flooding	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Salinity	0.25	Salinity	0.25
		Salinity	0.25	Dusty	0.04		

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sauce1	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Depth to saturated zone	1.00	Salinity	1.00
		Flooding	1.00	Salinity	1.00	Ponding	1.00
		Ponding	1.00	Dusty	0.03		
		Dusty	0.03				
TwA: Twinpalms	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Too sandy	1.00	Too sandy	1.00
		Too sandy	1.00			Flooding	0.60
Yarborough	40	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Salinity	1.00	Salinity	1.00	Salinity	1.00
		Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
		Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98
				Gravel	0.08		
VaA: Victine	97	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Slow water movement	0.45	Slow water movement	0.45	Slow water movement	0.45
		Dusty	0.43	Dusty	0.43		
VcA: Victoria	85	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Dusty	0.49	Dusty	0.49	Slow water movement	0.45
		Slow water movement	0.45	Slow water movement	0.45		
VcB: Victoria	95	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Dusty	0.49	Dusty	0.49	Slow water movement	0.45
		Slow water movement	0.45	Slow water movement	0.45		
W: Water	100	Not rated		Not rated		Not rated	

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 11.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
YaA: Yarborough	90	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Salinity	1.00	Salinity	1.00	Salinity	1.00
		Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
		Depth to saturated zone	0.98	Flooding	0.60	Depth to saturated zone	0.98
					Gravel	0.08	
YtC: Yturria	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.50	Too sandy	0.50	Slope	0.50
					Too sandy	0.50	

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited Too clayey Flooding	1.00 0.40	Very limited Too clayey Flooding	1.00 0.40	Very limited Flooding Sodium content Too clayey Salinity Depth to saturated zone	1.00 1.00 1.00 1.00 0.03
AcC: Arenisco	85	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
AnC: Arenisco	70	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
Topo	20	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Sodium content Depth to saturated zone Droughty Salinity	1.00 1.00 1.00 1.00 0.83 0.25
ArA: Arrada	90	Very limited Depth to saturated zone Ponding Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Ponding Flooding	1.00 1.00 0.60	Very limited Ponding Flooding Salinity Sodium content Depth to saturated zone	1.00 1.00 1.00 1.00 1.00
AsC: Arrada	55	Very limited Depth to saturated zone Ponding Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Ponding Flooding	1.00 1.00 0.60	Very limited Ponding Flooding Salinity Sodium content Depth to saturated zone	1.00 1.00 1.00 1.00 1.00
Lalinda	35	Not limited		Not limited		Very limited Sodium content Salinity	1.00 0.13

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BA: Baffin	95	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Salinity Sodium content Depth to saturated zone	1.00 1.00 1.00 1.00
BbA: Banquete	90	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Sodium content Too clayey	1.00 1.00
BdA: Barrada	90	Very limited Depth to saturated zone Too clayey Ponding Flooding	1.00 1.00 1.00 0.60	Very limited Depth to saturated zone Too clayey Ponding Flooding	1.00 1.00 1.00 0.60	Very limited Ponding Flooding Too clayey Salinity Sodium content	1.00 1.00 1.00 1.00 1.00
BE1: Beaches	90	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.60	Very limited Flooding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 0.34
BE2: Beaches	90	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.60	Very limited Flooding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 0.34
BE3: Beaches	90	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.60	Very limited Flooding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 0.34

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BE4: Beaches	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Flooding	1.00
		Too sandy Flooding	1.00 0.60	Too sandy Flooding	1.00 0.60	Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 0.34
BrA: Bordas	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00
		Ponding Too sandy	1.00 0.49	Ponding Too sandy	1.00 0.49	Depth to saturated zone	1.00
CaA: Calallen	85	Not limited		Not limited		Not limited	
CeA: Carreta	95	Not limited		Not limited		Very limited Sodium content Salinity Droughty	1.00 1.00 0.25
ChA: Cayo	90	Not limited		Not limited		Very limited Sodium content	1.00
CkA: Clareville	90	Not limited		Not limited		Not limited	
CkB: Clareville	90	Not limited		Not limited		Not limited	
CmA: Colmena	90	Not limited		Not limited		Not limited	
CmB: Colmena	90	Not limited		Not limited		Not limited	
CnA: Crane11	85	Not limited		Not limited		Very limited Sodium content	1.00
CnB: Crane11	90	Not limited		Not limited		Very limited Sodium content	1.00
CrA: Czar	90	Not limited		Not limited		Not limited	
CrB: Czar	90	Not limited		Not limited		Not limited	

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Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CzA: Czar	90	Not limited		Not limited		Not limited	
DaE: Daggerhill	86	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
DdE: Daggerhill	50	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
Mustang	41	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Too sandy	1.00	Too sandy	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Droughty Flooding	1.00 0.60
DeE: Daggerhill	45	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
Satatton	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Too sandy	1.00	Too sandy	1.00	Salinity	1.00
		Flooding	0.40	Flooding	0.40	Sodium content	1.00
						Depth to saturated zone	1.00
						Droughty	1.00
DfB: Delfina	90	Not limited		Not limited		Not limited	
DnB: Delfina	95	Not limited		Not limited		Not limited	
DrA: Dietrich	90	Somewhat limited Too sandy	0.94	Somewhat limited Too sandy	0.94	Very limited Sodium content	1.00
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
DsB: Dietrich	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Sodium content	1.00
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
						Droughty	0.07
DTE: Dune land	95	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty Flooding	1.00 0.60

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DU: Dune land	95	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty Flooding	1.00 0.60
DXC: Dune land	55	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty Flooding	1.00 0.60
Satatton	42	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.40	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.40	Very limited Flooding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 1.00
EdA: Edroy	95	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 1.00 1.00
EsA: Estella	80	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty Depth to saturated zone	0.69 0.19
FaC: Falfurrias	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
FaE: Falfurrias	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty Slope	1.00 0.16
FmC: Falfurrias	45	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
Atras	30	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty	0.69
Medanito	20	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Sodium content Droughty	1.00 0.26
FoD: Falfurrias	60	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Cayo	30	Not limited		Not limited		Very limited Sodium content	1.00
FtD: Falfurrias	60	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
Topo	30	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Sodium content Depth to saturated zone Droughty Salinity	1.00 1.00 1.00 0.83 0.25
GeB: Gertrudis	90	Not limited		Not limited		Not limited	
GhE: Greenhill	85	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
GmE: Greenhill	50	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
Mustang	41	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Droughty Flooding	1.00 1.00 1.00 0.60
GRE: Riverwash	55	Not rated		Not rated		Not rated	
Gullied land	35	Not rated		Not rated		Not rated	
IcA: Incell	90	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Sodium content	1.00 1.00 1.00 1.00
LaC: Lalinda	90	Not limited		Not limited		Very limited Sodium content Salinity	1.00 0.13
LpC: Lopeno	40	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Not limited	

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Potrero	28	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Depth to saturated zone	0.19
Arenisco	22	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty	1.00
LsC: Lopeno	55	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Not limited	
Sauce1	40	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Salinity Depth to saturated zone Droughty	1.00 1.00 1.00 1.00
LzC: Lopeno	56	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Not limited	
Sauz	35	Somewhat limited Too sandy Depth to saturated zone	0.96 0.44	Somewhat limited Too sandy Depth to saturated zone	0.96 0.44	Very limited Sodium content Depth to saturated zone Droughty	1.00 0.75 0.16
MaA: Madre	45	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Ponding Sodium content Depth to saturated zone Droughty Flooding	1.00 1.00 1.00 1.00 0.60
Malaquite	39	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Ponding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 1.00
MnB: Madre	48	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Ponding Sodium content Depth to saturated zone Droughty Flooding	1.00 1.00 1.00 1.00 1.00 0.60

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Panam	43	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Flooding Droughty	0.60 0.34
MoA: Montealto	90	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Too clayey Sodium content Salinity	1.00 1.00 1.00 1.00 1.00 0.50
MsA: Mustang	85	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Droughty Flooding	1.00 1.00 1.00 0.60
MtB: Mustang	49	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Droughty Flooding	1.00 1.00 1.00 0.60
Padre	42	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Flooding Droughty	0.60 0.34
MuB: Mustang	50	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Droughty Flooding	1.00 1.00 1.00 0.60
Panam	40	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Flooding Droughty	0.60 0.34
NaA: Narta	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NeA: Novillo	88	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Ponding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Droughty	1.00 1.00 0.99
NfC: Nueces	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty	0.07
NsC: Nueces	65	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty	0.07
Sarita	25	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty	0.69
OfA: Orelia	95	Somewhat limited Too sandy	0.11	Somewhat limited Too sandy	0.11	Very limited Sodium content	1.00
PaA: Padrones	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Sodium content Droughty	1.00 0.32
PbA: Palobia	90	Somewhat limited Too sandy	0.39	Somewhat limited Too sandy	0.39	Very limited Sodium content Droughty	1.00 0.23
PbB: Palobia	90	Somewhat limited Too sandy	0.39	Somewhat limited Too sandy	0.39	Very limited Sodium content Droughty	1.00 0.23
PeB: Palobia	90	Not limited		Not limited		Very limited Sodium content Droughty	1.00 0.46
PfA: Palobia	55	Not limited		Not limited		Very limited Sodium content Droughty	1.00 0.46
Colmena	35	Not limited		Not limited		Not limited	
PfB: Palobia	55	Not limited		Not limited		Very limited Sodium content Droughty	1.00 0.46
Colmena	35	Not limited		Not limited		Not limited	

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PgA: Papagua	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
PIT: Pits, quarry	90	Not rated		Not rated		Not rated	
PnC: Point Isabel	90	Not limited		Not limited		Very limited Sodium content	1.00
						Salinity	0.50
						Droughty	0.25
PoB: Portalto	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty	0.69
PrC: Potrero	45	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Depth to saturated zone	0.19
Lopeno	33	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Not limited	
Noria	17	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00
		Too sandy	1.00	Too sandy	1.00	Sodium content	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
						Droughty	1.00
						Salinity	1.00
PtB: Premont	90	Not limited		Not limited		Not limited	
QuA: Quiteria	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Sodium content	1.00
						Droughty	0.06
RaB: Ramita	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Sodium content	1.00
		Too sandy	0.57	Too sandy	0.57	Depth to saturated zone	1.00
						Droughty	0.02

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RbB: Ramita	60	Very limited Depth to saturated zone Too sandy	1.00 0.57	Very limited Depth to saturated zone Too sandy	1.00 0.57	Very limited Sodium content Depth to saturated zone Droughty	1.00 1.00 0.02
Bordas	35	Very limited Depth to saturated zone Ponding Too sandy	1.00 1.00 0.49	Very limited Depth to saturated zone Ponding Too sandy	1.00 1.00 0.49	Very limited Ponding Depth to saturated zone	1.00 1.00
RoB: Rockport	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty	0.34
SA: Salt flats, very frequently flooded	90	Not rated		Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated		Not rated	
SnC: Sarita	90	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty	0.69
SrC: Sarita	70	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty	0.69
Cayo	20	Not limited		Not limited		Very limited Sodium content	1.00
SsC: Sarita	75	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty	0.69
Topo	20	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Sodium content Depth to saturated zone Droughty Salinity	1.00 1.00 1.00 0.83 0.25

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
StA: Satatton	90	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.40	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.40	Very limited Flooding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 1.00
SuA: Sauce1	95	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Salinity Depth to saturated zone Droughty	1.00 1.00 1.00 1.00
SxB: Sauce1	65	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Salinity Depth to saturated zone Droughty	1.00 1.00 1.00 1.00
Potrero	25	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Depth to saturated zone	0.19
SyA: Sauz	90	Somewhat limited Too sandy Depth to saturated zone	0.96 0.44	Somewhat limited Too sandy Depth to saturated zone	0.96 0.44	Very limited Sodium content Depth to saturated zone Droughty	1.00 0.75 0.16
SzA: Sauz	50	Somewhat limited Too sandy Depth to saturated zone	0.96 0.44	Somewhat limited Too sandy Depth to saturated zone	0.96 0.44	Very limited Sodium content Depth to saturated zone Droughty	1.00 0.75 0.16
Sauce1	40	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Salinity Depth to saturated zone Droughty	1.00 1.00 1.00 1.00

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TaA: Tatton	95	Very limited Depth to saturated zone Too sandy Flooding	1.00 0.81 0.60	Very limited Depth to saturated zone Too sandy Flooding	1.00 0.81 0.60	Very limited Flooding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 0.91
TBA: Tatton	55	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.60	Very limited Flooding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 0.87
Beaches, washover fan	35	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Too sandy Flooding	1.00 1.00 0.60	Very limited Flooding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 0.69
ToA: Topo	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Sodium content Depth to saturated zone Droughty Salinity	1.00 1.00 1.00 1.00 0.83 0.25
TsA: Topo	60	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Sodium content Depth to saturated zone Droughty Salinity	1.00 1.00 1.00 1.00 0.83 0.25
Sauce1	30	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Salinity Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 1.00

Table 12.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TwA: Twinpalms	55	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Droughty Flooding	1.00 0.60
Yarborough	40	Somewhat limited Depth to saturated zone Flooding	0.44 0.40	Somewhat limited Depth to saturated zone Flooding	0.44 0.40	Very limited Flooding Salinity Sodium content Droughty Depth to saturated zone	1.00 1.00 1.00 0.75
VaA: Victine	97	Not limited		Not limited		Very limited Sodium content	1.00
VcA: Victoria	85	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Sodium content Too clayey	1.00 1.00
VcB: Victoria	95	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Sodium content Too clayey	1.00 1.00
W: Water	100	Not rated		Not rated		Not rated	
YaA: Yarborough	90	Somewhat limited Flooding Depth to saturated zone	0.60 0.44	Somewhat limited Flooding Depth to saturated zone	0.60 0.44	Very limited Flooding Salinity Sodium content Droughty Depth to saturated zone	1.00 1.00 1.00 0.75
YtC: Yturria	95	Somewhat limited Too sandy	0.50	Somewhat limited Too sandy	0.50	Not limited	

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited Too clayey Flooding HEL wind Excess salt Percs slowly	1.00 1.00 1.00 1.00 1.00 0.50	Very limited Too clayey Flooding Excess salt Excess sodium Percs slowly	1.00 1.00 1.00 1.00 1.00 0.50	Very limited Too clayey Flooding HEL wind Excess salt Percs slowly	1.00 1.00 1.00 1.00 1.00 0.50
AcC: Arenisco	85	Very limited Too sandy Droughty HEL wind	1.00 1.00 1.00 1.00	Very limited Droughty Too sandy	1.00 1.00 0.50	Very limited Droughty HEL wind Too sandy	1.00 1.00 1.00 0.50
AnC: Arenisco	70	Very limited Too sandy Droughty HEL wind	1.00 1.00 1.00 1.00	Very limited Droughty Too sandy	1.00 1.00 0.50	Very limited Droughty HEL wind Too sandy	1.00 1.00 1.00 0.50
Topo	20	Very limited Depth to saturated zone HEL wind Droughty Excess Sodium Ponding	1.00 1.00 1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Excess sodium Droughty Ponding Excess salt	1.00 1.00 1.00 0.82 0.50 0.25	Very limited Depth to saturated zone HEL wind Droughty Excess Sodium Ponding	1.00 1.00 1.00 1.00 1.00 0.50
ArA: Arrada	90	Very limited Droughty Depth to saturated zone Excess salt Excess Sodium HEL wind	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to saturated zone Excess salt Excess sodium Ponding	1.00 1.00 1.00 1.00 1.00 0.50	Very limited Droughty Depth to saturated zone Flooding Excess salt Excess Sodium	1.00 1.00 1.00 1.00 1.00 1.00
AsC: Arrada	55	Very limited Droughty Depth to saturated zone Excess salt Excess Sodium Potentially or highly erodible	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to saturated zone Excess salt Excess sodium Potentially or highly erodible	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to saturated zone Flooding Excess salt Excess Sodium	1.00 1.00 1.00 1.00 1.00 1.00
Lalinda	35	Very limited Potentially or highly erodible HEL wind Excess salt Excess Sodium	1.00 1.00 1.00 1.00 0.34	Very limited Potentially or highly erodible Excess sodium Excess salt	1.00 1.00 1.00 1.00	Very limited Potentially or highly erodible HEL wind Excess salt Excess Sodium	1.00 1.00 1.00 1.00 0.34

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BA: Baffin	95	Very limited Depth to saturated zone Excess salt Excess Sodium Droughty Ponding	1.00 1.00 1.00 0.88 0.50	Very limited Depth to saturated zone Excess salt Excess sodium Ponding	1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Excess salt Excess Sodium Droughty Ponding	1.00 1.00 1.00 0.88 0.50
BbA: Banquete	90	Very limited Too clayey HEL wind Droughty Percs slowly	1.00 1.00 0.27 0.25	Very limited Too clayey Percs slowly	1.00 0.25	Very limited Too clayey HEL wind Droughty Percs slowly	1.00 1.00 0.27 0.25
BdA: Barrada	90	Very limited Too clayey Droughty Depth to saturated zone Percs slowly Excess salt	1.00 1.00 1.00 1.00 1.00	Very limited Too clayey Droughty Depth to saturated zone Percs slowly Excess salt	1.00 1.00 1.00 1.00 1.00	Very limited Too clayey Droughty Depth to saturated zone Flooding Percs slowly	1.00 1.00 1.00 1.00 1.00
BE1: Beaches	90	Not rated		Not rated		Not rated	
BE2: Beaches	90	Not rated		Not rated		Not rated	
BE3: Beaches	90	Not rated		Not rated		Not rated	
BE4: Beaches	90	Not rated		Not rated		Not rated	
BrA: Bordas	95	Very limited Depth to saturated zone HEL wind Too sandy Ponding Droughty	1.00 1.00 0.50 0.50 0.01	Very limited Depth to saturated zone Too sandy Ponding	1.00 0.50 0.50	Very limited Depth to saturated zone HEL wind Ponding Droughty	1.00 1.00 0.50 0.01
CaA: Calallen	85	Very limited HEL wind Droughty	1.00 0.12	Not limited		Very limited HEL wind Droughty	1.00 0.12
CeA: Carreta	95	Very limited Droughty Excess salt Too clayey Excess Sodium Percs slowly	1.00 1.00 0.31 0.25 0.25	Very limited Excess sodium Excess salt Too clayey Percs slowly Droughty	1.00 1.00 0.31 0.25 0.24	Very limited Droughty Excess salt Too clayey Excess Sodium Percs slowly	1.00 1.00 0.31 0.25 0.25

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ChA: Cayo	90	Very limited Excess salt HEL wind Excess Sodium Droughty	1.00 1.00 1.00 0.94	Very limited Excess salt Excess sodium	1.00 1.00	Very limited Excess salt HEL wind Excess Sodium Droughty	1.00 1.00 1.00 0.94
CkA: Clareville	90	Somewhat limited Too clayey	0.11	Somewhat limited Too clayey	0.11	Somewhat limited Too clayey	0.11
CkB: Clareville	90	Very limited Potentially or highly erodible Too clayey	1.00 0.11	Very limited Potentially or highly erodible Too clayey	1.00 0.11	Very limited Potentially or highly erodible Too clayey	1.00 0.11
CmA: Colmena	90	Very limited HEL wind	1.00	Not limited		Very limited HEL wind	1.00
CmB: Colmena	90	Very limited HEL wind	1.00	Not limited		Very limited HEL wind	1.00
CnA: Crane11	85	Very limited HEL wind Percs slowly	1.00 0.25	Somewhat limited Percs slowly	0.25	Very limited HEL wind Percs slowly	1.00 0.25
CnB: Crane11	90	Very limited HEL wind Too clayey Percs slowly	1.00 0.57 0.25	Somewhat limited Too clayey Percs slowly	0.57 0.25	Very limited HEL wind Too clayey Percs slowly	1.00 0.57 0.25
CrA: Czar	90	Very limited HEL wind Droughty	1.00 0.15	Not limited		Very limited HEL wind Droughty	1.00 0.15
CrB: Czar	90	Very limited HEL wind Droughty	1.00 0.15	Not limited		Very limited HEL wind Droughty	1.00 0.15
CzA: Czar	90	Not limited		Not limited		Not limited	
DaE: Daggerhill	86	Very limited Too sandy Droughty Potentially or highly erodible HEL wind	1.00 1.00 1.00 1.00	Very limited Potentially or highly erodible Droughty Too sandy	1.00 1.00 0.50	Very limited Droughty Potentially or highly erodible HEL wind Slope Too sandy	1.00 1.00 1.00 0.50 0.50

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DdE: Daggerhill	50	Very limited		Very limited		Very limited	
		Too sandy	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00			Slope	0.50
						Too sandy	0.50
Mustang	41	Very limited		Very limited		Very limited	
		Too sandy	1.00	Depth to saturated zone	1.00	Droughty	1.00
		Droughty	1.00	Percs slowly	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Droughty	1.00	Percs slowly	1.00
		Percs slowly	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00	Ponding	0.50	Too sandy	0.50
DeE: Daggerhill	45	Very limited		Very limited		Very limited	
		Too sandy	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00			Too sandy	0.50
						Slope	0.12
Satatton	40	Very limited		Very limited		Very limited	
		Too sandy	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Percs slowly	1.00	Flooding	1.00
		Percs slowly	1.00	Excess salt	1.00	Percs slowly	1.00
		Excess salt	1.00	Excess sodium	1.00	Excess salt	1.00
DfB: Delfina	90	Very limited		Somewhat limited		Very limited	
		HEL wind	1.00	Too sandy	0.50	HEL wind	1.00
		Too sandy	0.50			Droughty	0.07
		Droughty	0.07				
DnB: Delfina	95	Very limited		Not limited		Very limited	
		HEL wind	1.00			HEL wind	1.00
		Droughty	0.07			Droughty	0.07
DrA: Dietrich	90	Very limited		Very limited		Very limited	
		Too sandy	1.00	Excess sodium	1.00	HEL wind	1.00
		HEL wind	1.00	Depth to saturated zone	0.94	Excess Sodium	0.97
		Excess Sodium	0.97	Too sandy	0.50	Droughty	0.95
		Droughty	0.95	Percs slowly	0.33	Depth to saturated zone	0.94
		Depth to saturated zone	0.94	Excess salt	0.12	Too sandy	0.50

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DsB: Dietrich	90	Very limited HEL wind	1.00	Somewhat limited Depth to saturated zone	0.94	Very limited HEL wind	1.00
		Droughty Depth to saturated zone	1.00 0.94	Too sandy Droughty	0.50 0.06	Droughty Depth to saturated zone	1.00 0.94
		Too sandy	0.50				
DTE: Dune land	95	Not rated		Not rated		Not rated	
DU: Dune land	95	Not rated		Not rated		Not rated	
DXC: Dune land	55	Not rated		Not rated		Not rated	
Satatton	42	Very limited Too sandy	1.00	Very limited Droughty	1.00	Very limited Droughty	1.00
		Droughty	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Percs slowly	1.00	Flooding	1.00
		Percs slowly	1.00	Excess salt	1.00	Percs slowly	1.00
		Excess salt	1.00	Excess sodium	1.00	Excess salt	1.00
EdA: Edroy	95	Very limited Too clayey	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		HEL wind	1.00	Ponding	0.50	HEL wind	1.00
		Ponding	0.50	Percs slowly	0.50	Ponding	0.50
		Percs slowly	0.50			Percs slowly	0.50
EsA: Estella	80	Very limited Too sandy	1.00	Somewhat limited Depth to saturated zone	0.75	Very limited Droughty	1.00
		Droughty HEL wind	1.00 1.00	Droughty Too sandy	0.68 0.50	HEL wind Depth to saturated zone	1.00 0.75
		Depth to saturated zone	0.75			Too sandy	0.50
FaC: Falfurrias	90	Very limited Too sandy	1.00	Very limited Droughty	1.00	Very limited Droughty	1.00
		Droughty HEL wind	1.00 1.00	Too sandy	0.50	HEL wind Too sandy	1.00 0.50
FaE: Falfurrias	90	Very limited Too sandy	1.00	Very limited Droughty	1.00	Very limited Droughty	1.00
		Droughty HEL wind	1.00 1.00	Too sandy	0.50	HEL wind Slope	1.00 1.00
						Too sandy	0.50

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FmC: Falfurrias	45	Very limited Too sandy	1.00	Very limited Potentially or highly erodible	1.00	Very limited Droughty	1.00
		Droughty	1.00	Droughty	1.00	Potentially or highly erodible	1.00
		Potentially or highly erodible HEL wind	1.00	Too sandy	0.50	HEL wind	1.00
			1.00			Too sandy	0.50
Atras	30	Very limited Too sandy	1.00	Very limited Potentially or highly erodible	1.00	Very limited Droughty	1.00
		Droughty	1.00	Droughty	0.68	Potentially or highly erodible	1.00
		Potentially or highly erodible HEL wind	1.00	Too sandy	0.50	HEL wind	1.00
			1.00			Too sandy	0.50
Medanito	20	Very limited Too sandy	1.00	Very limited Potentially or highly erodible	1.00	Very limited Droughty	1.00
		Droughty	1.00	Too sandy	0.50	Potentially or highly erodible	1.00
		Potentially or highly erodible HEL wind	1.00	Droughty	0.25	HEL wind	1.00
			1.00			Too sandy	0.50
FoD: Falfurrias	60	Very limited Too sandy	1.00	Very limited Potentially or highly erodible	1.00	Very limited Droughty	1.00
		Droughty	1.00	Droughty	1.00	Potentially or highly erodible	1.00
		Potentially or highly erodible HEL wind	1.00	Too sandy	0.50	HEL wind	1.00
			1.00			Too sandy	0.50
Cayo	30	Very limited Excess salt	1.00	Very limited Excess salt	1.00	Very limited Excess salt	1.00
		Potentially or highly erodible	1.00	Excess sodium	1.00	Potentially or highly erodible	1.00
		HEL wind	1.00	Potentially or highly erodible	1.00	HEL wind	1.00
		Excess Sodium Droughty	1.00 0.94			Excess Sodium Droughty	1.00 0.94
FtD: Falfurrias	60	Very limited Too sandy	1.00	Very limited Potentially or highly erodible	1.00	Very limited Droughty	1.00
		Droughty	1.00	Droughty	1.00	Potentially or highly erodible	1.00
		Potentially or highly erodible HEL wind	1.00	Too sandy	0.50	HEL wind	1.00
			1.00			Too sandy Slope	0.50 0.12

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Topo	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Potentially or highly erodible	1.00	Excess sodium	1.00	Potentially or highly erodible	1.00
		HEL wind	1.00	Potentially or highly erodible	1.00	HEL wind	1.00
		Droughty	1.00	Droughty	0.82	Droughty	1.00
		Excess Sodium	1.00	Ponding	0.50	Excess Sodium	1.00
GeB: Gertrudis	90	Very limited		Not limited		Very limited	
		HEL wind	1.00			HEL wind	1.00
		Droughty	0.06			Droughty	0.06
GhE: Greenhill	85	Very limited		Very limited		Very limited	
		Too sandy	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Droughty	1.00	Droughty	1.00	Potentially or highly erodible	1.00
		Potentially or highly erodible	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00			Slope	0.50
				Too sandy	0.50		
GmE: Greenhill	50	Very limited		Very limited		Very limited	
		Too sandy	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Droughty	1.00	Droughty	1.00	Potentially or highly erodible	1.00
		Potentially or highly erodible	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00			Slope	0.50
				Too sandy	0.50		
Mustang	41	Very limited		Very limited		Very limited	
		Too sandy	1.00	Depth to saturated zone	1.00	Droughty	1.00
		Droughty	1.00	Percs slowly	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Potentially or highly erodible	1.00	Percs slowly	1.00
		Percs slowly	1.00	Droughty	1.00	Potentially or highly erodible	1.00
		Potentially or highly erodible	1.00	Too sandy	0.50	HEL wind	1.00
GRE: Riverwash	55	Not rated		Not rated		Not rated	
Gullied land	35	Not rated		Not rated		Not rated	

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
IcA: Incell	90	Very limited Too clayey Depth to saturated zone Percs slowly HEL wind Ponding	1.00 1.00 1.00 1.00 1.00 0.50	Very limited Too clayey Depth to saturated zone Percs slowly Ponding	1.00 1.00 1.00 1.00 0.50	Very limited Too clayey Depth to saturated zone Percs slowly HEL wind Ponding	1.00 1.00 1.00 1.00 1.00 0.50
LaC: Lalinda	90	Very limited Potentially or highly erodible HEL wind Excess salt Excess Sodium	1.00 1.00 1.00 1.00 0.34	Very limited Potentially or highly erodible Excess sodium Excess salt	1.00 1.00 1.00 1.00	Very limited Potentially or highly erodible HEL wind Excess salt Excess Sodium	1.00 1.00 1.00 1.00 0.34
LpC: Lopeno	40	Very limited Too sandy HEL wind Droughty	1.00 1.00 1.00 0.38	Somewhat limited Too sandy	0.50	Very limited HEL wind Too sandy Droughty	1.00 0.50 0.38
Potrero	28	Very limited Too sandy HEL wind Droughty Depth to saturated zone	1.00 1.00 1.00 0.99 0.75	Somewhat limited Depth to saturated zone Too sandy	0.75 0.50	Very limited HEL wind Droughty Depth to saturated zone Too sandy	1.00 0.99 0.75 0.50
Arenisco	22	Very limited Too sandy Droughty HEL wind	1.00 1.00 1.00	Very limited Droughty Too sandy	1.00 0.50	Very limited Droughty HEL wind Too sandy	1.00 1.00 0.50
LsC: Lopeno	55	Very limited Too sandy Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00 1.00 0.38	Very limited Potentially or highly erodible Too sandy	1.00 0.50	Very limited Potentially or highly erodible HEL wind Too sandy Droughty	1.00 1.00 0.50 0.38
Sauce1	40	Very limited Droughty Depth to saturated zone Excess salt Potentially or highly erodible HEL wind	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to saturated zone Excess salt Potentially or highly erodible Ponding	1.00 1.00 1.00 1.00 1.00 0.50	Very limited Droughty Depth to saturated zone Excess salt Potentially or highly erodible HEL wind	1.00 1.00 1.00 1.00 1.00 1.00

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LzC: Lopeno	56	Very limited		Very limited		Very limited	
		Too sandy	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Potentially or highly erodible	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00			Too sandy	0.50
		Droughty	0.38			Droughty	0.38
Sauz	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Potentially or highly erodible	1.00	Excess sodium	1.00	Potentially or highly erodible	1.00
		HEL wind	1.00	Potentially or highly erodible	1.00	HEL wind	1.00
		Droughty	1.00	Excess salt	1.00	Droughty	1.00
		Excess salt	1.00	Too sandy	0.50	Excess salt	1.00
MaA: Madre	45	Very limited		Very limited		Very limited	
		Too sandy	1.00	Depth to saturated zone	1.00	Droughty	1.00
		Droughty	1.00	Percs slowly	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Excess sodium	1.00	Percs slowly	1.00
		Percs slowly	1.00	Droughty	1.00	HEL wind	1.00
		HEL wind	1.00	Too sandy	0.50	Too sandy	0.50
Malaquite	39	Very limited		Very limited		Very limited	
		Too sandy	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Percs slowly	1.00	Percs slowly	1.00
		Percs slowly	1.00	Excess salt	1.00	Excess salt	1.00
		Excess salt	1.00	Excess sodium	1.00	Excess Sodium	1.00
MnB: Madre	48	Very limited		Very limited		Very limited	
		Too sandy	1.00	Depth to saturated zone	1.00	Droughty	1.00
		Droughty	1.00	Percs slowly	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Excess sodium	1.00	Percs slowly	1.00
		Percs slowly	1.00	Droughty	1.00	HEL wind	1.00
		HEL wind	1.00	Too sandy	0.50	Too sandy	0.50
Panam	43	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Too sandy	0.50	Droughty	1.00
		Droughty	1.00	Flooding	0.50	HEL wind	1.00
		HEL wind	1.00	Droughty	0.32	Too sandy	0.50
		Flooding	0.50			Flooding	0.50

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MoA: Montealto	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Percs slowly	1.00	Percs slowly	1.00	Percs slowly	1.00
		Excess salt	1.00	Excess salt	1.00	Excess salt	1.00
		HEL wind	1.00	Ponding	0.50	HEL wind	1.00
MsA: Mustang	85	Very limited		Very limited		Very limited	
		Too sandy	1.00	Depth to saturated zone	1.00	Droughty	1.00
		Droughty	1.00	Percs slowly	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Droughty	1.00	Percs slowly	1.00
		Percs slowly	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00	Ponding	0.50	Too sandy	0.50
MtB: Mustang	49	Very limited		Very limited		Very limited	
		Too sandy	1.00	Depth to saturated zone	1.00	Droughty	1.00
		Droughty	1.00	Percs slowly	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Droughty	1.00	Percs slowly	1.00
		Percs slowly	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00	Ponding	0.50	Too sandy	0.50
Padre	42	Very limited		Very limited		Very limited	
		Too sandy	1.00	Percs slowly	1.00	Droughty	1.00
		Droughty	1.00	Too sandy	0.50	Percs slowly	1.00
		Percs slowly	1.00	Flooding	0.50	HEL wind	1.00
		HEL wind	1.00	Droughty	0.32	Too sandy	0.50
		Flooding	0.50			Flooding	0.50
MuB: Mustang	50	Very limited		Very limited		Very limited	
		Too sandy	1.00	Depth to saturated zone	1.00	Droughty	1.00
		Droughty	1.00	Percs slowly	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Droughty	1.00	Percs slowly	1.00
		Percs slowly	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00	Ponding	0.50	Too sandy	0.50
Panam	40	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Too sandy	0.50	Droughty	1.00
		Droughty	1.00	Flooding	0.50	HEL wind	1.00
		HEL wind	1.00	Droughty	0.32	Too sandy	0.50
		Flooding	0.50			Flooding	0.50

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NaA: Narta	90	Very limited Droughty Depth to saturated zone Excess salt Potentially or highly erodible HEL wind	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to saturated zone Excess salt Excess sodium Potentially or highly erodible	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to saturated zone Excess salt Potentially or highly erodible HEL wind	1.00 1.00 1.00 1.00 1.00
NeA: Novillo	88	Not rated		Not rated		Not rated	
NfC: Nueces	90	Very limited Too sandy Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00 1.00	Very limited Potentially or highly erodible Too sandy Droughty	1.00 0.50 0.06	Very limited Potentially or highly erodible HEL wind Droughty Too sandy	1.00 1.00 1.00 0.50
NsC: Nueces	65	Very limited Too sandy Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00 1.00	Very limited Potentially or highly erodible Too sandy Droughty	1.00 0.50 0.06	Very limited Potentially or highly erodible HEL wind Droughty Too sandy	1.00 1.00 1.00 0.50
Sarita	25	Very limited Too sandy Droughty Potentially or highly erodible HEL wind	1.00 1.00 1.00 1.00	Very limited Potentially or highly erodible Droughty Too sandy	1.00 0.68 0.50	Very limited Droughty Potentially or highly erodible HEL wind Too sandy	1.00 1.00 1.00 0.50
OfA: Orelia	95	Very limited HEL wind Percs slowly Droughty	1.00 0.33 0.12	Somewhat limited Percs slowly	0.33	Very limited HEL wind Percs slowly Droughty	1.00 0.33 0.12
PaA: Padrones	90	Very limited Too sandy HEL wind Droughty	1.00 1.00 1.00	Somewhat limited Too sandy Droughty	0.50 0.30	Very limited HEL wind Droughty Too sandy	1.00 1.00 0.50
PbA: Palobia	90	Very limited HEL wind Droughty Too sandy	1.00 1.00 0.50	Somewhat limited Too sandy Droughty	0.50 0.22	Very limited HEL wind Droughty	1.00 1.00

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Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PbB: Palobia	90	Very limited Potentially or highly erodible HEL wind Droughty Too sandy	1.00 1.00 1.00 0.50	Very limited Potentially or highly erodible Too sandy Droughty	1.00 0.50 0.22	Very limited Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00
PeB: Palobia	90	Very limited Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00	Very limited Potentially or highly erodible Droughty	1.00 0.44	Very limited Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00
PfA: Palobia	55	Very limited Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00	Very limited Potentially or highly erodible Droughty	1.00 0.44	Very limited Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00
Colmena	35	Very limited Potentially or highly erodible HEL wind	1.00 1.00	Very limited Potentially or highly erodible	1.00	Very limited Potentially or highly erodible HEL wind	1.00 1.00
PfB: Palobia	55	Very limited Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00	Very limited Potentially or highly erodible Droughty	1.00 0.44	Very limited Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00
Colmena	35	Very limited Potentially or highly erodible HEL wind	1.00 1.00	Very limited Potentially or highly erodible	1.00	Very limited Potentially or highly erodible HEL wind	1.00 1.00
PgA: Papagua	90	Very limited Depth to saturated zone HEL wind Ponding Percs slowly	1.00 1.00 0.50 0.33	Very limited Depth to saturated zone Ponding Percs slowly	1.00 0.50 0.33	Very limited Depth to saturated zone HEL wind Ponding Percs slowly	1.00 1.00 0.50 0.33
PIT: Pits, quarry	90	Not rated		Not rated		Not rated	
PnC: Point Isabel	90	Very limited Potentially or highly erodible HEL wind Droughty Too clayey Excess salt	1.00 1.00 1.00 0.70 0.50	Very limited Excess sodium Potentially or highly erodible Too clayey Excess salt Droughty	1.00 1.00 0.70 0.50 0.24	Very limited Potentially or highly erodible HEL wind Droughty Too clayey Excess salt	1.00 1.00 1.00 0.70 0.50

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Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PoB: Portalto	90	Very limited Too sandy Droughty HEL wind	1.00 1.00 1.00	Somewhat limited Droughty Too sandy	0.68 0.50	Very limited Droughty HEL wind Too sandy	1.00 1.00 0.50
PrC: Potrero	45	Very limited Too sandy Potentially or highly erodible HEL wind Droughty Depth to saturated zone	1.00 1.00 1.00 0.99 0.75	Very limited Potentially or highly erodible Depth to saturated zone Too sandy	1.00 0.75 0.50	Very limited Potentially or highly erodible HEL wind Droughty Depth to saturated zone Too sandy	1.00 1.00 0.99 0.75 0.50
Lopeno	33	Very limited Too sandy Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00 0.38	Very limited Potentially or highly erodible Too sandy	1.00 0.50	Very limited Potentially or highly erodible HEL wind Too sandy Droughty	1.00 1.00 0.50 0.38
Noria	17	Very limited Too sandy Droughty Depth to saturated zone Potentially or highly erodible HEL wind	1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Potentially or highly erodible Droughty Excess sodium Excess salt	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to saturated zone Potentially or highly erodible HEL wind Excess salt	1.00 1.00 1.00 1.00 1.00
PtB: Premont	90	Very limited HEL wind Droughty	1.00 0.02	Not limited		Very limited HEL wind Droughty	1.00 0.02
QuA: Quiteria	90	Very limited Too sandy HEL wind Droughty	1.00 1.00 1.00	Very limited Excess sodium Too sandy Droughty	1.00 0.50 0.05	Very limited HEL wind Droughty Too sandy	1.00 1.00 0.50
RaB: Ramita	85	Very limited Too sandy Depth to saturated zone Potentially or highly erodible HEL wind Droughty	1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Potentially or highly erodible Excess sodium Too sandy Droughty	1.00 1.00 1.00 1.00 0.50 0.01	Very limited Depth to saturated zone Potentially or highly erodible HEL wind Droughty Too sandy	1.00 1.00 1.00 1.00 1.00 0.50

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RbB: Ramita	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		HEL wind	1.00	Excess sodium	1.00	HEL wind	1.00
		Droughty	1.00	Too sandy	0.50	Droughty	1.00
		Too sandy	0.50	Droughty	0.01	Excess Sodium	0.25
Bordas	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		HEL wind	1.00	Too sandy	0.50	HEL wind	1.00
		Too sandy	0.50	Ponding	0.50	Ponding	0.50
		Ponding	0.50	Droughty	0.01		
RoB: Rockport	90	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Too sandy	0.50	Droughty	1.00
		Droughty	1.00	Droughty	0.32	HEL wind	1.00
		HEL wind	1.00			Too sandy	0.50
SA: Salt flats, very frequently flooded	90	Not rated		Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated		Not rated	
SnC: Sarita	90	Very limited		Very limited		Very limited	
		Too sandy	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Droughty	1.00	Droughty	0.68	Potentially or highly erodible	1.00
		Potentially or highly erodible	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00			Too sandy	0.50
SrC: Sarita	70	Very limited		Very limited		Very limited	
		Too sandy	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Droughty	1.00	Droughty	0.68	Potentially or highly erodible	1.00
		Potentially or highly erodible	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00			Too sandy	0.50

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Cayo	20	Very limited		Very limited		Very limited	
		Excess salt	1.00	Excess salt	1.00	Excess salt	1.00
		Potentially or highly erodible	1.00	Excess sodium	1.00	Potentially or highly erodible	1.00
		HEL wind	1.00	Potentially or highly erodible	1.00	HEL wind	1.00
		Excess Sodium Droughty	1.00 0.94			Excess Sodium Droughty	1.00 0.94
SsC: Sarita	75	Very limited		Very limited		Very limited	
		Too sandy	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Droughty	1.00	Droughty	0.68	Potentially or highly erodible	1.00
		Potentially or highly erodible	1.00	Too sandy	0.50	HEL wind	1.00
		HEL wind	1.00			Too sandy	0.50
Topo	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Potentially or highly erodible	1.00	Excess sodium	1.00	Potentially or highly erodible	1.00
		HEL wind	1.00	Potentially or highly erodible	1.00	HEL wind	1.00
		Droughty	1.00	Droughty	0.82	Droughty	1.00
		Excess Sodium	1.00	Ponding	0.50	Excess Sodium	1.00
StA: Satatton	90	Very limited		Very limited		Very limited	
		Too sandy	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Percs slowly	1.00	Flooding	1.00
		Percs slowly	1.00	Excess salt	1.00	Percs slowly	1.00
		Excess salt	1.00	Excess sodium	1.00	Excess salt	1.00
SuA: Sauce1	95	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Excess salt	1.00	Excess salt	1.00	Excess salt	1.00
		HEL wind	1.00	Ponding	0.50	HEL wind	1.00
		Ponding	0.50	Excess sodium	0.32	Ponding	0.50
SxB: Sauce1	65	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Excess salt	1.00	Excess salt	1.00	Excess salt	1.00
		HEL wind	1.00	Ponding	0.50	HEL wind	1.00
		Ponding	0.50	Excess sodium	0.32	Ponding	0.50

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Potrero	25	Very limited Too sandy	1.00	Somewhat limited Depth to saturated zone	0.75	Very limited HEL wind	1.00
		HEL wind Droughty	1.00 0.99	Too sandy	0.50	Droughty Depth to saturated zone	0.99 0.75
		Depth to saturated zone	0.75			Too sandy	0.50
SyA: Sauz	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		HEL wind Droughty	1.00 1.00	Excess sodium Excess salt	1.00 1.00	HEL wind Droughty	1.00 1.00
		Excess salt Too sandy	1.00 0.50	Too sandy Droughty	0.50 0.15	Excess salt Excess Sodium	1.00 0.34
SzA: Sauz	50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		HEL wind Droughty	1.00 1.00	Excess sodium Excess salt	1.00 1.00	HEL wind Droughty	1.00 1.00
		Excess salt Too sandy	1.00 0.50	Too sandy Droughty	0.50 0.15	Excess salt Excess Sodium	1.00 0.34
Sauce1	40	Very limited Droughty	1.00 1.00	Very limited Droughty	1.00 1.00	Very limited Droughty	1.00 1.00
		Depth to saturated zone Excess salt	1.00 1.00	Depth to saturated zone Excess salt	1.00 1.00	Depth to saturated zone Excess salt	1.00 1.00
		HEL wind Ponding	1.00 0.50	Ponding Excess sodium	0.50 0.32	HEL wind Ponding	1.00 0.50
TaA: Tatton	95	Very limited Too sandy	1.00	Very limited Depth to saturated zone	1.00	Very limited Droughty	1.00
		Droughty	1.00	Percs slowly	1.00	Depth to saturated zone	1.00
		Depth to saturated zone Percs slowly	1.00 1.00	Excess salt Excess sodium	1.00 1.00	Flooding Percs slowly	1.00 1.00
		Excess salt	1.00	Droughty	0.90	Excess salt	1.00
TBA: Tatton	55	Very limited Too sandy	1.00	Very limited Depth to saturated zone	1.00	Very limited Droughty	1.00
		Droughty	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone Flooding	1.00 1.00	Percs slowly	1.00	Flooding	1.00
		Percs slowly	1.00	Excess salt Excess sodium	1.00 1.00	Percs slowly Excess salt	1.00 1.00

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Beaches, washover fan	35	Not rated		Not rated		Not rated	
ToA: Topo	90	Very limited Depth to saturated zone HEL wind Droughty Excess Sodium Ponding	1.00 1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Excess sodium Droughty Ponding Excess salt	1.00 1.00 0.82 0.50 0.25	Very limited Depth to saturated zone HEL wind Droughty Excess Sodium Ponding	1.00 1.00 1.00 1.00 0.50
TsA: Topo	60	Very limited Depth to saturated zone HEL wind Droughty Excess Sodium Ponding	1.00 1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Excess sodium Droughty Ponding Excess salt	1.00 1.00 0.82 0.50 0.25	Very limited Depth to saturated zone HEL wind Droughty Excess Sodium Ponding	1.00 1.00 1.00 1.00 0.50
Sauce1	30	Very limited Droughty Depth to saturated zone Excess salt HEL wind Ponding	1.00 1.00 1.00 1.00 0.50	Very limited Droughty Depth to saturated zone Excess salt Ponding Excess sodium	1.00 1.00 1.00 0.50 0.32	Very limited Droughty Depth to saturated zone Excess salt HEL wind Ponding	1.00 1.00 1.00 1.00 0.50
TwA: Twinpalms	55	Very limited Too sandy Droughty Potentially or highly erodible HEL wind Flooding	1.00 1.00 1.00 1.00 0.50	Very limited Potentially or highly erodible Droughty Too sandy Flooding	1.00 1.00 0.50 0.50	Very limited Droughty Potentially or highly erodible HEL wind Too sandy Flooding	1.00 1.00 1.00 0.50 0.50
Yarborough	40	Very limited Droughty Depth to saturated zone Excess salt Potentially or highly erodible HEL wind	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to saturated zone Excess salt Excess sodium Potentially or highly erodible	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to saturated zone Flooding Excess salt Potentially or highly erodible	1.00 1.00 1.00 1.00 1.00
VaA: Victine	97	Very limited HEL wind Droughty Percs slowly Too clayey Excess Sodium	1.00 0.80 0.50 0.27 0.01	Very limited Excess sodium Percs slowly Too clayey	1.00 0.50 0.27	Very limited HEL wind Droughty Percs slowly Too clayey Excess Sodium	1.00 0.80 0.50 0.27 0.01

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 13.--Grain and Seed Crops, Domestic Grasses and Legumes, and Irrigated Grain and Seed Crops for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Grain and Seed Crops for Food and Cover		Domestic Grasses and Legumes for Food and Cover		Irrigated Grain and Seed Crops for Food and Cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VcA: Victoria	85	Very limited Too clayey HEL wind Percs slowly Droughty Excess salt	1.00 1.00 0.50 0.23 0.03	Very limited Too clayey Percs slowly Excess salt	1.00 0.50 0.03	Very limited Too clayey HEL wind Percs slowly Droughty Excess salt	1.00 1.00 0.50 0.23 0.03
VcB: Victoria	95	Very limited Too clayey HEL wind Percs slowly Droughty Excess salt	1.00 1.00 0.50 0.23 0.03	Very limited Too clayey Percs slowly Excess salt	1.00 0.50 0.03	Very limited Too clayey HEL wind Percs slowly Droughty Excess salt	1.00 1.00 0.50 0.23 0.03
W: Water	100	Not rated		Not rated		Not rated	
YaA: Yarborough	90	Very limited Droughty Depth to saturated zone Excess salt HEL wind Excess Sodium	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to saturated zone Excess salt Excess sodium Flooding	1.00 1.00 1.00 1.00 0.50	Very limited Droughty Depth to saturated zone Flooding Excess salt HEL wind	1.00 1.00 1.00 1.00 1.00
YtC: Yturria	95	Very limited HEL wind Droughty	1.00 0.56	Not limited		Very limited HEL wind Droughty	1.00 0.56

Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat.

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited Too clayey	1.00	Very limited Flooding	1.00
		Flooding	1.00	Too clayey	1.00
		Excess salt	1.00	Depth to saturated zone	0.44
		Percs slowly	0.50		
		Depth to saturated zone	0.44		
AcC: Arenisco	85	Very limited Droughty	1.00	Somewhat limited Too Sandy	0.50
		Too sandy	0.50	Flooding	0.50
AnC: Arenisco	70	Very limited Droughty	1.00	Somewhat limited Too Sandy	0.50
		Too sandy	0.50	Flooding	0.50
Topo	20	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00
		Excess Sodium	1.00	Depth to saturated zone	1.00
		Droughty	0.82	Flooding	0.50
		Ponding	0.50		
		Excess salt	0.25		
ArA: Arrada	90	Very limited Droughty	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
		Excess salt	1.00		
		Excess Sodium	1.00		
AsC: Arrada	55	Very limited Droughty	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
		Excess salt	1.00		
		Excess Sodium	1.00		

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Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Lalinda	35	Very limited Potentially or highly erodible Excess salt Excess Sodium	1.00 1.00 0.34	Somewhat limited Flooding	0.50
BA: Baffin	95	Very limited Depth to saturated zone Excess salt Excess Sodium Ponding	1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00
BbA: Banquete	90	Very limited Too clayey Percs slowly	1.00 0.25	Very limited Too clayey	1.00
BdA: Barrada	90	Very limited Too clayey Droughty Depth to saturated zone Flooding Percs slowly	1.00 1.00 1.00 1.00 1.00	Very limited Too clayey Flooding Ponding Depth to saturated zone	1.00 1.00 1.00 1.00
BE1: Beaches	90	Not rated		Very limited Flooding Depth to saturated zone Too Sandy	1.00 1.00 0.50
BE2: Beaches	90	Not rated		Very limited Flooding Depth to saturated zone	1.00 1.00
BE3: Beaches	90	Not rated		Very limited Flooding Depth to saturated zone Too Sandy	1.00 1.00 0.50
BE4: Beaches	90	Not rated		Very limited Flooding Depth to saturated zone	1.00 1.00

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Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
BrA: Bordas	95	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00
		Ponding	0.50	Depth to saturated zone	1.00
CaA: Calallen	85	Not limited		Somewhat limited Too clayey	0.24
CeA: Carreta	95	Very limited Excess salt	1.00	Very limited Too clayey	1.00
		Too clayey	0.31		
		Excess Sodium	0.25		
		Percs slowly	0.25		
		Droughty	0.24		
ChA: Cayo	90	Very limited Excess salt	1.00	Not limited	
		Excess Sodium	1.00		
CkA: Clareville	90	Somewhat limited Too clayey	0.11	Very limited Too clayey	1.00
CkB: Clareville	90	Very limited Potentially or highly erodible	1.00	Very limited Too clayey	1.00
		Too clayey	0.11		
CmA: Colmena	90	Not limited		Somewhat limited Too clayey	0.03
CmB: Colmena	90	Not limited		Somewhat limited Too clayey	0.03
CnA: Cranell	85	Somewhat limited Percs slowly	0.25	Very limited Too clayey	1.00
CnB: Cranell	90	Somewhat limited Too clayey	0.57	Very limited Too clayey	1.00
		Percs slowly	0.25		
CrA: Czar	90	Not limited		Not limited	
CrB: Czar	90	Not limited		Not limited	

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Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
CzA: Czar	90	Not limited		Somewhat limited Too clayey	0.11
DaE: Daggerhill	86	Very limited Potentially or highly erodible	1.00	Somewhat limited Too Sandy	0.50
		Droughty Slope Too sandy	1.00 0.50 0.50	Flooding	0.50
DdE: Daggerhill	50	Very limited Droughty Slope Too sandy	1.00 0.50 0.50	Somewhat limited Too Sandy Flooding	0.50 0.50
Mustang	41	Very limited Depth to saturated zone Percs slowly Droughty Too sandy Ponding	1.00 1.00 1.00 0.50 0.50	Very limited Flooding Ponding Depth to saturated zone Too Sandy	1.00 1.00 1.00 0.50
DeE: Daggerhill	45	Very limited Droughty Too sandy Slope	1.00 0.50 0.12	Somewhat limited Too Sandy Flooding	0.50 0.50
Satatton	40	Very limited Droughty Depth to saturated zone Flooding Percs slowly Excess salt	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Too Sandy	1.00 1.00 0.50
DfB: Delfina	90	Not limited		Somewhat limited Too clayey	0.11
DnB: Delfina	95	Not limited		Somewhat limited Too clayey	0.11
DrA: Dietrich	90	Somewhat limited Excess Sodium Depth to saturated zone Too sandy Percs slowly Excess salt	0.97 0.94 0.50 0.33 0.12	Somewhat limited Depth to saturated zone Flooding Too clayey	0.94 0.50 0.11

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
DsB: Dietrich	90	Somewhat limited Depth to saturated zone Droughty	0.94 0.06	Somewhat limited Depth to saturated zone Flooding	0.94 0.50
DTE: Dune land	95	Not rated		Very limited Flooding Too Sandy	1.00 0.50
DU: Dune land	95	Not rated		Very limited Flooding Too Sandy	1.00 0.50
DXC: Dune land	55	Not rated		Very limited Flooding Too Sandy	1.00 0.50
Satatton	42	Very limited Droughty Depth to saturated zone Flooding Percs slowly Excess salt	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Too Sandy	1.00 1.00 0.50
EdA: Edroy	95	Very limited Too clayey Depth to saturated zone Ponding Percs slowly	1.00 1.00 0.50 0.50	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 1.00
EsA: Estella	80	Somewhat limited Depth to saturated zone Droughty Too sandy	0.75 0.68 0.50	Somewhat limited Depth to saturated zone Too Sandy	0.75 0.50
FaC: Falfurrias	90	Very limited Droughty Too sandy	1.00 0.50	Somewhat limited Too Sandy	0.50
FaE: Falfurrias	90	Very limited Droughty Slope Too sandy	1.00 1.00 0.50	Somewhat limited Too Sandy	0.50

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
FmC: Falfurrias	45	Very limited Potentially or highly erodible Droughty Too sandy	1.00 1.00 0.50	Somewhat limited Too Sandy	0.50
Atiras	30	Very limited Potentially or highly erodible Droughty Too sandy	1.00 0.68 0.50	Somewhat limited Too Sandy	0.50
Medanito	20	Very limited Potentially or highly erodible Too sandy Droughty	1.00 0.50 0.25	Somewhat limited Too Sandy	0.50
FoD: Falfurrias	60	Very limited Potentially or highly erodible Droughty Too sandy	1.00 1.00 0.50	Somewhat limited Too Sandy	0.50
Cayo	30	Very limited Excess salt Potentially or highly erodible Excess Sodium	1.00 1.00 1.00	Not limited	
FtD: Falfurrias	60	Very limited Potentially or highly erodible Droughty Too sandy Slope	1.00 1.00 0.50 0.12	Somewhat limited Too Sandy	0.50
Topo	30	Very limited Depth to saturated zone Potentially or highly erodible Excess Sodium Droughty Ponding	1.00 1.00 1.00 0.82 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00
GeB: Gertrudis	90	Not limited		Not limited	
GhE: Greenhill	85	Very limited Potentially or highly erodible Droughty Slope Too sandy	1.00 1.00 0.50 0.50	Somewhat limited Too Sandy Flooding	0.50 0.50

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
GmE: Greenhill	50	Very limited Potentially or highly erodible	1.00	Somewhat limited Too Sandy	0.50
		Droughty	1.00	Flooding	0.50
		Slope	0.50		
		Too sandy	0.50		
Mustang	41	Very limited Depth to saturated zone	1.00	Very limited Flooding	1.00
		Percs slowly	1.00	Ponding	1.00
		Potentially or highly erodible	1.00	Depth to saturated zone	1.00
		Droughty	1.00	Too Sandy	0.50
		Too sandy	0.50		
GRE: Riverwash	55	Not rated		Not rated	
Gullied land	35	Not rated		Not rated	
IcA: Incell	90	Very limited Too clayey	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Percs slowly	1.00	Too clayey	1.00
		Ponding	0.50		
LaC: Lalinda	90	Very limited Potentially or highly erodible	1.00	Somewhat limited Flooding	0.50
		Excess salt	1.00		
		Excess Sodium	0.34		
LpC: Lopeno	40	Somewhat limited Too sandy	0.50	Somewhat limited Too Sandy	0.50
				Flooding	0.50
Potrero	28	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone	0.75
		Too sandy	0.50	Too Sandy	0.50
				Flooding	0.50
Arenisco	22	Very limited Droughty	1.00	Somewhat limited Too Sandy	0.50
		Too sandy	0.50	Flooding	0.50
LsC: Lopeno	55	Very limited Potentially or highly erodible	1.00	Somewhat limited Too Sandy	0.50
		Too sandy	0.50	Flooding	0.50

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Sauce1	40	Very limited		Very limited	
		Droughty	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Excess salt	1.00	Flooding	0.50
		Potentially or highly erodible	1.00		
		Ponding	0.50		
LzC: Lopeno	56	Very limited		Somewhat limited	
		Potentially or highly erodible	1.00	Too Sandy	0.50
		Too sandy	0.50	Flooding	0.50
Sauz	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Potentially or highly erodible	1.00	Flooding	0.50
		Excess salt	1.00		
		Excess Sodium	0.34		
		Droughty	0.15		
MaA: Madre	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Percs slowly	1.00	Ponding	1.00
		Droughty	1.00	Depth to saturated zone	1.00
		Too sandy	0.50	Too Sandy	0.50
		Ponding	0.50		
Malaquite	39	Very limited		Very limited	
		Droughty	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Percs slowly	1.00	Depth to saturated zone	1.00
		Excess salt	1.00	Too Sandy	0.50
		Excess Sodium	1.00		
MnB: Madre	48	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Percs slowly	1.00	Ponding	1.00
		Droughty	1.00	Depth to saturated zone	1.00
		Too sandy	0.50	Too Sandy	0.50
		Ponding	0.50		
Panam	43	Somewhat limited		Very limited	
		Too sandy	0.50	Flooding	1.00
		Flooding	0.50	Too Sandy	0.50
		Droughty	0.32		

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
MoA: Montealto	90	Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Percs slowly	1.00	Depth to saturated zone	1.00
		Excess salt Ponding	1.00 0.50		
MSA: Mustang	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Percs slowly	1.00	Ponding	1.00
		Droughty	1.00	Depth to saturated zone	1.00
		Too sandy Ponding	0.50 0.50	Too Sandy	0.50
MtB: Mustang	49	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Percs slowly	1.00	Ponding	1.00
		Droughty	1.00	Depth to saturated zone	1.00
		Too sandy Ponding	0.50 0.50	Too Sandy	0.50
Padre	42	Very limited		Very limited	
		Percs slowly	1.00	Flooding	1.00
		Too sandy	0.50	Too Sandy	0.50
		Flooding Droughty	0.50 0.32		
MuB: Mustang	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Percs slowly	1.00	Ponding	1.00
		Droughty	1.00	Depth to saturated zone	1.00
		Too sandy Ponding	0.50 0.50	Too Sandy	0.50
Panam	40	Somewhat limited		Very limited	
		Too sandy	0.50	Flooding	1.00
		Flooding	0.50	Too Sandy	0.50
		Droughty	0.32		

Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
NaA: Narta	90	Very limited Droughty	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	0.80
		Excess salt	1.00	Flooding	0.50
		Potentially or highly erodible	1.00		
		Excess Sodium	1.00		
NeA: Novillo	88	Not rated		Very limited Ponding	1.00
				Depth to saturated zone	1.00
				Too Sandy	0.50
				Flooding	0.50
NfC: Nueces	90	Very limited Potentially or highly erodible	1.00	Somewhat limited Too Sandy	0.50
		Too sandy	0.50		
		Droughty	0.06		
NsC: Nueces	65	Very limited Potentially or highly erodible	1.00	Somewhat limited Too Sandy	0.50
		Too sandy	0.50		
		Droughty	0.06		
Sarita	25	Very limited Potentially or highly erodible	1.00	Somewhat limited Too Sandy	0.50
		Droughty	0.68		
		Too sandy	0.50		
OfA: Orelia	95	Somewhat limited Percs slowly	0.33	Not limited	
PaA: Padrones	90	Somewhat limited Too sandy Droughty	0.50 0.30	Somewhat limited Too Sandy	0.50
PbA: Palobia	90	Somewhat limited Droughty	0.22	Not limited	

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Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
PbB: Palobia	90	Very limited Potentially or highly erodible Droughty	1.00 0.22	Not limited	
PeB: Palobia	90	Very limited Potentially or highly erodible Droughty	1.00 0.44	Somewhat limited Too clayey	0.11
PfA: Palobia	55	Very limited Potentially or highly erodible Droughty	1.00 0.44	Somewhat limited Too clayey	0.11
Colmena	35	Very limited Potentially or highly erodible	1.00	Somewhat limited Too clayey	0.03
PfB: Palobia	55	Very limited Potentially or highly erodible Droughty	1.00 0.44	Somewhat limited Too clayey	0.11
Colmena	35	Very limited Potentially or highly erodible	1.00	Somewhat limited Too clayey	0.03
PgA: Papagua	90	Very limited Depth to saturated zone Ponding Percs slowly	1.00 0.50 0.33	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 1.00
PIT: Pits, quarry	90	Not rated		Not rated	
PnC: Point Isabel	90	Very limited Potentially or highly erodible Too clayey Excess salt Droughty Percs slowly	1.00 0.70 0.50 0.24 0.17	Very limited Too clayey Flooding	1.00 0.50
PoB: Portalto	90	Somewhat limited Droughty Too sandy	0.68 0.50	Somewhat limited Too Sandy Flooding	0.50 0.50

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Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
PrC: Potrero	45	Very limited		Somewhat limited	
		Potentially or highly erodible	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Too Sandy	0.50
		Too sandy	0.50	Flooding	0.50
Lopeno	33	Very limited		Somewhat limited	
		Potentially or highly erodible	1.00	Too Sandy	0.50
		Too sandy	0.50	Flooding	0.50
Noria	17	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
		Potentially or highly erodible	1.00	Depth to saturated zone	1.00
		Droughty	1.00	Too Sandy	0.50
		Excess salt	1.00	Flooding	0.50
		Excess Sodium	1.00		
PtB: Premont	90	Not limited		Somewhat limited	
				Too clayey	0.11
QuA: Quiteria	90	Somewhat limited		Not limited	
		Too sandy	0.50		
		Droughty	0.05		
RaB: Ramita	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Potentially or highly erodible	1.00	Too Sandy	0.50
		Too sandy	0.50		
		Excess Sodium	0.25		
		Droughty	0.01		
RbB: Ramita	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Potentially or highly erodible	1.00		
		Excess Sodium	0.25		
		Droughty	0.01		
Bordas	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
		Potentially or highly erodible	1.00	Depth to saturated zone	1.00
		Ponding	0.50		

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
RoB: Rockport	90	Somewhat limited Too sandy Droughty	0.50 0.32	Somewhat limited Too Sandy Flooding	0.50 0.50
SA: Salt flats, very frequently flooded	90	Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated	
SnC: Sarita	90	Very limited Potentially or highly erodible Droughty Too sandy	1.00 0.68 0.50	Somewhat limited Too Sandy	0.50
SrC: Sarita	70	Very limited Potentially or highly erodible Droughty Too sandy	1.00 0.68 0.50	Somewhat limited Too Sandy	0.50
Cayo	20	Very limited Excess salt Potentially or highly erodible Excess Sodium	1.00 1.00 1.00	Not limited	
SsC: Sarita	75	Very limited Potentially or highly erodible Droughty Too sandy	1.00 0.68 0.50	Somewhat limited Too Sandy	0.50
Topo	20	Very limited Depth to saturated zone Potentially or highly erodible Excess Sodium Droughty Ponding	1.00 1.00 1.00 1.00 0.82 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00
StA: Satatton	90	Very limited Droughty Depth to saturated zone Flooding Percs slowly Excess salt	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Too Sandy	1.00 1.00 0.50

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Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
SuA: Sauce1	95	Very limited Droughty Depth to saturated zone Excess salt Ponding	1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 1.00 0.50
SxB: Sauce1	65	Very limited Droughty Depth to saturated zone Excess salt Ponding	1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 1.00 0.50
Potrero	25	Somewhat limited Depth to saturated zone Too sandy	0.75 0.50	Somewhat limited Depth to saturated zone Too Sandy Flooding	0.75 0.50 0.50
SyA: Sauz	90	Very limited Depth to saturated zone Excess salt Excess Sodium Droughty	1.00 1.00 0.34 0.15	Very limited Depth to saturated zone Flooding	1.00 0.50
SzA: Sauz	50	Very limited Depth to saturated zone Excess salt Excess Sodium Droughty	1.00 1.00 0.34 0.15	Very limited Depth to saturated zone Flooding	1.00 0.50
Sauce1	40	Very limited Droughty Depth to saturated zone Excess salt Ponding	1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 1.00 0.50
TaA: Tatton	95	Very limited Depth to saturated zone Flooding Percs slowly Excess salt Excess Sodium	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
TBA: Tatton	55	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Flooding	1.00
		Percs slowly Excess salt Excess Sodium	1.00 1.00 1.00	Depth to saturated zone Too Sandy	1.00 0.50
Beaches, washover fan	35	Not rated		Very limited Flooding Depth to saturated zone Too Sandy	1.00 1.00 0.50
ToA: Topo	90	Very limited Depth to saturated zone Excess Sodium	1.00 1.00	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.50
		Droughty Ponding Excess salt	0.82 0.50 0.25		
TsA: Topo	60	Very limited Depth to saturated zone Excess Sodium	1.00 1.00	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.50
		Droughty Ponding Excess salt	0.82 0.50 0.25		
Saucel	30	Very limited Droughty Depth to saturated zone Excess salt Ponding	1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.50
TwA: Twinpalms	55	Very limited Potentially or highly erodible Droughty Too sandy Flooding	1.00 1.00 0.50 0.50	Very limited Flooding Too Sandy	1.00 0.50

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Table 14.--Irrigated Domestic Grasses and Legumes, and Burrowing Mammals and Reptiles for Food and Cover for Wildlife Habitat--Continued.

Map symbol and soil name	Pct. of map unit	Irrigated Domestic Grasses and Legumes for Food and Cover		Burrowing Mammals and Reptiles	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Yarborough	40	Very limited Droughty Depth to saturated zone Flooding Excess salt Potentially or highly erodible	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
VaA: Victine	97	Somewhat limited Percs slowly Too clayey Excess Sodium	0.50 0.27 0.01	Very limited Too clayey	1.00
VcA: Victoria	85	Very limited Too clayey Percs slowly Excess salt	1.00 0.50 0.03	Very limited Too clayey	1.00
VcB: Victoria	95	Very limited Too clayey Percs slowly Excess salt	1.00 0.50 0.03	Very limited Too clayey	1.00
W: Water	100	Not rated		Not rated	
YaA: Yarborough	90	Very limited Droughty Depth to saturated zone Flooding Excess salt Excess Sodium	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
YtC: Yturria	95	Not limited		Not limited	

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited		Somewhat limited	
		Excess sodium	1.00	Too clayey	0.50
		Too clayey	0.50	Extreme soil temperatures	0.50
		Depth to saturated zone	0.44	Depth to saturated zone	0.44
		Excess salt	0.22	Excess salt	0.22
				Excess Sodium	0.03
AcC: Arenisco	85	Somewhat limited		Somewhat limited	
		Sandy surface	0.40	Extreme soil temperatures	0.50
				Sandy surface	0.40
AnC: Arenisco	70	Somewhat limited		Somewhat limited	
		Sandy surface	0.40	Extreme soil temperatures	0.50
				Sandy surface	0.40
Topo	20	Very limited		Very limited	
		Excess sodium	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Excess Sodium	1.00
		Excess salt	0.03	Extreme soil temperatures	0.50
				Excess salt	0.03
ArA: Arrada	90	Very limited		Very limited	
		Excess salt	1.00	Excess salt	1.00
		Excess sodium	1.00	Excess Sodium	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.50	Droughty	0.50
				Extreme soil temperatures	0.50
AsC: Arrada	55	Very limited		Very limited	
		Excess salt	1.00	Excess salt	1.00
		Excess sodium	1.00	Excess Sodium	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.50	Droughty	0.50
				Extreme soil temperatures	0.50
Lalinda	35	Very limited		Somewhat limited	
		Excess sodium	1.00	Excess salt	0.99
		Excess salt	0.99	Extreme soil temperatures	0.50
				Excess Sodium	0.34

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Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
BA: Baffin	95	Very limited		Very limited	
		Excess salt	1.00	Excess salt	1.00
		Excess sodium	1.00	Excess Sodium	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Extreme soil temperatures	0.50
BbA: Banquete	90	Somewhat limited		Somewhat limited	
		Too clayey	0.50	Too clayey	0.50
				Extreme soil temperatures	0.50
BdA: Barrada	90	Very limited		Very limited	
		Excess salt	1.00	Excess salt	1.00
		Excess sodium	1.00	Excess Sodium	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Too clayey	0.50
Droughty	0.50	Droughty	0.50		
BE1: Beaches	90	Not rated		Very limited	
				Depth to saturated zone	1.00
				Excess salt	0.99
				Sandy surface	0.40
		Excess Sodium	0.34		
BE2: Beaches	90	Not rated		Very limited	
				Depth to saturated zone	1.00
				Excess salt	0.99
				Sandy surface	0.40
		Excess Sodium	0.34		
BE3: Beaches	90	Not rated		Very limited	
				Depth to saturated zone	1.00
				Excess salt	0.99
				Sandy surface	0.40
		Excess Sodium	0.34		
BE4: Beaches	90	Not rated		Very limited	
				Depth to saturated zone	1.00
				Excess salt	0.99
				Sandy surface	0.40
		Excess Sodium	0.34		

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
BrA: Bordas	95	Very limited Depth to saturated zone Sandy surface	1.00 0.60	Very limited Depth to saturated zone Sandy surface Extreme soil temperatures	1.00 0.60 0.50
CaA: Calallen	85	Not limited		Somewhat limited Extreme soil temperatures	0.50
CeA: Carreta	95	Very limited Excess sodium Excess salt	1.00 1.00	Very limited Excess salt Extreme soil temperatures Excess Sodium	1.00 0.50 0.25
ChA: Cayo	90	Very limited Excess sodium Excess salt	1.00 0.74	Very limited Excess Sodium Excess salt Extreme soil temperatures	1.00 0.74 0.50
CkA: Clareville	90	Not limited		Somewhat limited Extreme soil temperatures	0.50
CkB: Clareville	90	Not limited		Somewhat limited Extreme soil temperatures	0.50
CmA: Colmena	90	Not limited		Somewhat limited Extreme soil temperatures	0.50
CmB: Colmena	90	Not limited		Somewhat limited Extreme soil temperatures	0.50
CnA: Crane11	85	Not limited		Somewhat limited Extreme soil temperatures	0.50
CnB: Crane11	90	Not limited		Somewhat limited Extreme soil temperatures	0.50

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
CrA: Czar	90	Not limited		Somewhat limited Extreme soil temperatures	0.50
CrB: Czar	90	Not limited		Somewhat limited Extreme soil temperatures	0.50
CzA: Czar	90	Not limited		Somewhat limited Extreme soil temperatures	0.50
DaE: Daggerhill	86	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
DdE: Daggerhill	50	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Mustang	41	Very limited Depth to saturated zone Droughty Sandy surface	1.00 0.50 0.40	Very limited Depth to saturated zone Extreme soil temperatures Droughty Sandy surface	1.00 0.50 0.50 0.40
DeE: Daggerhill	45	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Satatton	40	Very limited Excess salt Excess sodium Depth to saturated zone Droughty Sandy surface	1.00 1.00 1.00 0.50 0.40	Very limited Excess salt Excess Sodium Depth to saturated zone Droughty Extreme soil temperatures	1.00 1.00 1.00 0.50 0.50

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Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
DfB: Delfina	90	Somewhat limited Sandy surface	0.60	Somewhat limited Sandy surface Extreme soil temperatures	0.60 0.50
DnB: Delfina	95	Not limited		Somewhat limited Extreme soil temperatures	0.50
DrA: Dietrich	90	Very limited Excess sodium Depth to saturated zone Sandy surface Excess salt	1.00 0.94 0.40 0.01	Somewhat limited Excess Sodium Depth to saturated zone Extreme soil temperatures Sandy surface Excess salt	0.97 0.94 0.50 0.40 0.01
DsB: Dietrich	90	Somewhat limited Depth to saturated zone Sandy surface	0.94 0.60	Somewhat limited Depth to saturated zone Sandy surface Extreme soil temperatures	0.94 0.60 0.50
DTE: Dune land	95	Not rated		Somewhat limited Droughty Sandy surface	0.50 0.40
DU: Dune land	95	Not rated		Somewhat limited Droughty Sandy surface	0.50 0.40
DXC: Dune land	55	Not rated		Somewhat limited Droughty Sandy surface	0.50 0.40
Satatton	42	Very limited Excess salt Excess sodium Depth to saturated zone Droughty Sandy surface	1.00 1.00 1.00 0.50 0.40	Very limited Excess salt Excess Sodium Depth to saturated zone Droughty Extreme soil temperatures	1.00 1.00 1.00 0.50 0.50

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Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
EdA: Edroy	95	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone Too clayey Extreme soil temperatures	1.00 0.50 0.50
EsA: Estella	80	Somewhat limited Depth to saturated zone Sandy surface	0.75 0.40	Somewhat limited Depth to saturated zone Extreme soil temperatures Sandy surface	0.75 0.50 0.40
FaC: Falfurrias	90	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
FaE: Falfurrias	90	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
FmC: Falfurrias	45	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Atiras	30	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Medanito	20	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
FoD: Falfurrias	60	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Cayo	30	Very limited Excess sodium Excess salt	1.00 0.74	Very limited Excess Sodium Excess salt Extreme soil temperatures	1.00 0.74 0.50

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
FtD: Falfurrias	60	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Topo	30	Very limited Excess sodium	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone Excess salt	1.00 0.03	Excess Sodium Extreme soil temperatures Excess salt	1.00 0.50 0.03
GeB: Gertrudis	90	Not limited		Somewhat limited Extreme soil temperatures	0.50
GhE: Greenhill	85	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
GmE: Greenhill	50	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Mustang	41	Very limited Depth to saturated zone Droughty Sandy surface	1.00 0.50 0.40	Very limited Depth to saturated zone Extreme soil temperatures Droughty Sandy surface	1.00 0.50 0.50 0.40
GRE: Riverwash	55	Not rated		Not rated	
Gullied land	35	Not rated		Not rated	
IcA: Incell	90	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone Too clayey Extreme soil temperatures	1.00 0.50 0.50

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
LaC: Lalinda	90	Very limited Excess sodium Excess salt	1.00 0.99	Somewhat limited Excess salt Extreme soil temperatures Excess Sodium	0.99 0.50 0.34
LpC: Lopeno	40	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Potrero	28	Somewhat limited Depth to saturated zone Sandy surface	0.75 0.40	Somewhat limited Depth to saturated zone Extreme soil temperatures Sandy surface	0.75 0.50 0.40
Arenisco	22	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
LsC: Lopeno	55	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Saucel	40	Very limited Excess salt Depth to saturated zone Droughty Excess sodium	1.00 1.00 0.50 0.32	Very limited Excess salt Depth to saturated zone Extreme soil temperatures Droughty	1.00 1.00 0.50 0.50
LzC: Lopeno	56	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Sauz	35	Very limited Excess sodium Depth to saturated zone Excess salt Sandy surface	1.00 1.00 0.78 0.60	Very limited Depth to saturated zone Excess salt Sandy surface Extreme soil temperatures Excess Sodium	1.00 0.78 0.60 0.50 0.34

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
MaA: Madre	45	Very limited		Very limited	
		Excess sodium	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Extreme soil temperatures	0.50
		Droughty	0.50	Droughty	0.50
		Sandy surface	0.40	Sandy surface	0.40
				Excess Sodium	0.06
Malaquite	39	Very limited		Very limited	
		Excess sodium	1.00	Excess Sodium	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Excess salt	1.00	Excess salt	1.00
		Droughty	0.50	Droughty	0.50
		Sandy surface	0.40	Extreme soil temperatures	0.50
MnB: Madre	48	Very limited		Very limited	
		Excess sodium	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Extreme soil temperatures	0.50
		Droughty	0.50	Droughty	0.50
		Sandy surface	0.40	Sandy surface	0.40
				Excess Sodium	0.06
Panam	43	Somewhat limited		Somewhat limited	
		Sandy surface	0.40	Extreme soil temperatures	0.50
				Sandy surface	0.40
MoA: Montealto	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Excess salt	0.78	Excess salt	0.78
		Too clayey	0.50	Too clayey	0.50
		Excess sodium	0.08	Extreme soil temperatures	0.50
MsA: Mustang	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.50	Extreme soil temperatures	0.50
		Sandy surface	0.40	Droughty	0.50
				Sandy surface	0.40

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
MtB: Mustang	49	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.50	Extreme soil temperatures	0.50
		Sandy surface	0.40	Droughty	0.50
				Sandy surface	0.40
Padre	42	Somewhat limited		Somewhat limited	
		Sandy surface	0.40	Extreme soil temperatures	0.50
				Sandy surface	0.40
MuB: Mustang	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.50	Extreme soil temperatures	0.50
		Sandy surface	0.40	Droughty	0.50
				Sandy surface	0.40
Panam	40	Somewhat limited		Somewhat limited	
		Sandy surface	0.40	Extreme soil temperatures	0.50
				Sandy surface	0.40
NaA: Narta	90	Very limited		Very limited	
		Excess sodium	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Excess Sodium	1.00
		Droughty	0.50	Droughty	0.50
		Excess salt	0.28	Extreme soil temperatures	0.50
				Excess salt	0.28
NeA: Novillo	88	Not rated		Not rated	
NfC: Nueces	90	Somewhat limited		Somewhat limited	
		Sandy surface	0.40	Extreme soil temperatures	0.50
				Sandy surface	0.40
NsC: Nueces	65	Somewhat limited		Somewhat limited	
		Sandy surface	0.40	Extreme soil temperatures	0.50
				Sandy surface	0.40

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Sarita	25	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
OfA: Orelia	95	Not limited		Somewhat limited Extreme soil temperatures	0.50
PaA: Padrones	90	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
PbA: Palobia	90	Somewhat limited Sandy surface	0.60	Somewhat limited Sandy surface Extreme soil temperatures	0.60 0.50
PbB: Palobia	90	Somewhat limited Sandy surface	0.60	Somewhat limited Sandy surface Extreme soil temperatures	0.60 0.50
PeB: Palobia	90	Not limited		Somewhat limited Extreme soil temperatures	0.50
PfA: Palobia	55	Not limited		Somewhat limited Extreme soil temperatures	0.50
Colmena	35	Not limited		Somewhat limited Extreme soil temperatures	0.50
PfB: Palobia	55	Not limited		Somewhat limited Extreme soil temperatures	0.50
Colmena	35	Not limited		Somewhat limited Extreme soil temperatures	0.50
PgA: Papagua	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Extreme soil temperatures	1.00 0.50

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
PIT: Pits, quarry	90	Not rated		Not rated	
PnC: Point Isabel	90	Very limited Excess sodium	1.00	Somewhat limited Extreme soil temperatures	0.50
		Excess salt	0.06	Excess Sodium Excess salt	0.11 0.06
PoB: Portalto	90	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
PrC: Potrero	45	Somewhat limited Depth to saturated zone Sandy surface	0.75 0.40	Somewhat limited Depth to saturated zone Extreme soil temperatures Sandy surface	0.75 0.50 0.40
Lopeno	33	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Noria	17	Very limited Depth to saturated zone Excess sodium Excess salt Droughty Sandy surface	1.00 1.00 1.00 0.50 0.40	Very limited Depth to saturated zone Excess salt Excess Sodium Extreme soil temperatures Droughty	1.00 1.00 1.00 0.50 0.50
PtB: Premont	90	Not limited		Somewhat limited Extreme soil temperatures	0.50
QuA: Quiteria	90	Very limited Excess sodium Sandy surface	1.00 0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
RaB: Ramita	85	Very limited Depth to saturated zone Excess sodium Sandy surface	1.00 1.00 0.40	Very limited Depth to saturated zone Extreme soil temperatures Sandy surface Excess Sodium	1.00 0.50 0.40 0.25

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
RbB: Ramita	60	Very limited Depth to saturated zone Excess sodium Sandy surface	1.00 1.00 0.60	Very limited Depth to saturated zone Sandy surface Extreme soil temperatures Excess Sodium	1.00 0.60 0.50 0.25
Bordas	35	Very limited Depth to saturated zone Sandy surface	1.00 0.60	Very limited Depth to saturated zone Sandy surface Extreme soil temperatures	1.00 0.60 0.50
RoB: Rockport	90	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
SA: Salt flats, very frequently flooded	90	Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated	
SnC: Sarita	90	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
SrC: Sarita	70	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40
Cayo	20	Very limited Excess sodium Excess salt	1.00 0.74	Very limited Excess Sodium Excess salt Extreme soil temperatures	1.00 0.74 0.50
SsC: Sarita	75	Somewhat limited Sandy surface	0.40	Somewhat limited Extreme soil temperatures Sandy surface	0.50 0.40

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Topo	20	Very limited		Very limited	
		Excess sodium	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Excess Sodium	1.00
		Excess salt	0.03	Extreme soil temperatures	0.50
				Excess salt	0.03
StA: Satatton	90	Very limited		Very limited	
		Excess salt	1.00	Excess salt	1.00
		Excess sodium	1.00	Excess Sodium	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.50	Droughty	0.50
Sandy surface	0.40	Extreme soil temperatures	0.50		
SuA: Sauce1	95	Very limited		Very limited	
		Excess salt	1.00	Excess salt	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.50	Extreme soil temperatures	0.50
		Excess sodium	0.32	Droughty	0.50
SxB: Sauce1	65	Very limited		Very limited	
		Excess salt	1.00	Excess salt	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	0.50	Extreme soil temperatures	0.50
		Excess sodium	0.32	Droughty	0.50
Potrero	25	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.75	Depth to saturated zone	0.75
		Sandy surface	0.40	Extreme soil temperatures	0.50
				Sandy surface	0.40
SyA: Sauz	90	Very limited		Very limited	
		Excess sodium	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Excess salt	0.78
		Excess salt	0.78	Sandy surface	0.60
		Sandy surface	0.60	Extreme soil temperatures	0.50
				Excess Sodium	0.34

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
SzA: Sauz	50	Very limited		Very limited	
		Excess sodium	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Excess salt	0.78
		Excess salt	0.78	Sandy surface	0.60
Sauce1	40	Sandy surface	0.60	Extreme soil temperatures	0.50
		Very limited		Excess Sodium	0.34
		Excess salt	1.00	Very limited	
		Depth to saturated zone	1.00	Excess salt	1.00
TaA: Tatton	95	Droughty	0.50	Depth to saturated zone	1.00
		Excess sodium	0.32	Extreme soil temperatures	0.50
		Very limited		Droughty	0.50
		Excess salt	1.00	Very limited	
TBA: Tatton	55	Excess sodium	1.00	Excess salt	1.00
		Depth to saturated zone	1.00	Excess Sodium	1.00
		Sandy surface	0.40	Depth to saturated zone	1.00
		Very limited		Extreme soil temperatures	0.50
Beaches, washover fan	35	Not rated		Sandy surface	0.40
		Very limited		Very limited	
		Excess salt	1.00	Excess salt	1.00
		Excess sodium	1.00	Excess Sodium	1.00
ToA: Topo	90	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Excess salt	0.03	Excess Sodium	1.00
		Very limited		Extreme soil temperatures	0.50
		Excess sodium	1.00	Excess salt	0.03

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
TsA: Topo	60	Very limited Excess sodium	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone Excess salt	1.00	Excess Sodium	1.00
			0.03	Extreme soil temperatures	0.50
				Excess salt	0.03
Sauce1	30	Very limited Excess salt	1.00	Very limited Excess salt	1.00
		Depth to saturated zone Droughty	1.00	Depth to saturated zone	1.00
			0.50	Extreme soil temperatures	0.50
		Excess sodium	0.32	Droughty	0.50
TwA: Twinpalms	55	Somewhat limited Droughty	0.50	Somewhat limited Extreme soil temperatures	0.50
		Sandy surface	0.40	Droughty	0.50
				Sandy surface	0.40
Yarborough	40	Very limited Excess salt	1.00	Very limited Excess salt	1.00
		Excess sodium	1.00	Depth to saturated zone	1.00
		Depth to saturated zone Droughty	1.00	Excess Sodium	1.00
			0.50	Droughty	0.50
				Extreme soil temperatures	0.50
VaA: Victine	97	Very limited Excess sodium	1.00	Somewhat limited Extreme soil temperatures	0.50
				Excess Sodium	0.01
VcA: Victoria	85	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50
				Extreme soil temperatures	0.50
VcB: Victoria	95	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50
				Extreme soil temperatures	0.50

Table 15.--Upland Native Herbaceous Plants, and Upland Shrubs and Vines for Food and Cover for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Upland Native Herbaceous Plants		Upland Shrubs and Vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value
W: Water	100	Not rated		Not rated	
YaA: Yarborough	90	Very limited		Very limited	
		Excess salt	1.00	Excess salt	1.00
		Excess sodium	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Excess Sodium	1.00
		Droughty	0.50	Droughty	0.50
				Extreme soil temperatures	0.50
YtC: Yturria	95	Not limited		Somewhat limited	
				Extreme soil temperatures	0.50

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited Excess salt Too dry Long flooding Excess sodium	1.00 0.76 0.50 0.05	Very limited Excess salt Flooding Excess sodium	1.00 0.50 0.11	Very limited Excess salt Excess sodium Too dry	1.00 1.00 0.76
AcC: Arenisco	85	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Droughty Too dry	1.00 0.56	Very limited Too dry Too sandy	1.00 0.50
AnC: Arenisco	70	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Droughty Too dry	1.00 0.56	Very limited Too dry Too sandy	1.00 0.50
Topo	20	Very limited Infrequent flooding Excess sodium Ponding Excess salt	1.00 1.00 0.50 0.27	Very limited Excess sodium Droughty Ponding Excess salt	1.00 0.82 0.50 0.27	Very limited Excess sodium Excess salt Too alkaline	1.00 1.00 1.00
ArA: Arrada	90	Very limited Excess salt Excess sodium Ponding	1.00 1.00 0.50	Very limited Droughty Excess salt Excess sodium Ponding	1.00 1.00 1.00 0.50	Very limited Excess salt Excess sodium Too alkaline	1.00 1.00 1.00
AsC: Arrada	55	Very limited Excess salt Excess sodium Ponding	1.00 1.00 0.50	Very limited Droughty Excess salt Excess sodium Ponding	1.00 1.00 1.00 0.50	Very limited Excess salt Excess sodium Too alkaline	1.00 1.00 1.00
Lalinda	35	Very limited Too dry Infrequent flooding Excess salt	1.00 1.00 0.14	Very limited Too dry Excess salt	1.00 0.14	Very limited Too dry Excess salt Too alkaline	1.00 1.00 1.00

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BA: Baffin	95	Very limited Ponding	1.00	Very limited Excess salt	1.00	Very limited Excess salt	1.00
		Infrequent flooding	1.00	Excess sodium	1.00	Excess sodium	1.00
		Excess salt	1.00	Ponding	0.50	Ponding	0.50
		Excess sodium	1.00				
BbA: Banquete	90	Very limited Too dry	1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.04
BdA: Barrada	90	Very limited Excess salt	1.00	Very limited Droughty	1.00	Very limited Excess salt	1.00
		Excess sodium	1.00	Excess salt	1.00	Excess sodium	1.00
		Ponding	0.50	Excess sodium	1.00	Too alkaline	1.00
				Ponding	0.50		
BE1: Beaches	90	Not rated		Not rated		Very limited Excess salt	1.00
						Excess sodium	1.00
						Too sandy	0.50
BE2: Beaches	90	Not rated		Not rated		Very limited Excess salt	1.00
						Excess sodium	1.00
						Too sandy	0.50
BE3: Beaches	90	Not rated		Not rated		Very limited Excess salt	1.00
						Excess sodium	1.00
						Too sandy	0.50
BE4: Beaches	90	Not rated		Not rated		Very limited Excess salt	1.00
						Excess sodium	1.00
						Too sandy	0.50
BrA: Bordas	95	Very limited Infrequent flooding	1.00	Somewhat limited Ponding	0.50	Somewhat limited Too acid	0.04
		Too sandy	0.50				
		Ponding	0.50				
CaA: Calallen	85	Very limited Too dry	1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
		Infrequent flooding	1.00				

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CeA: Carreta	95	Very limited Too dry Infrequent flooding Excess salt Excess sodium	1.00 1.00 1.00 0.27	Very limited Too dry Excess salt Excess sodium Droughty	1.00 1.00 0.57 0.24	Very limited Too dry Excess salt Excess sodium	1.00 1.00 1.00
ChA: Cayo	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry Too alkaline	1.00 1.00
CkA: Clareville	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
CkB: Clareville	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
CmA: Colmena	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
CmB: Colmena	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
CnA: Crane11	85	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
CnB: Crane11	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
CrA: Czar	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CrB: Czar	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
CzA: Czar	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
DaE: Daggerhill	86	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too alkaline Too sandy	1.00 1.00 0.50
DdE: Daggerhill	50	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too alkaline Too sandy	1.00 1.00 0.50
Mustang	41	Very limited Too sandy Infrequent flooding Ponding	1.00 1.00 0.50	Very limited Droughty Ponding	1.00 0.50	Very limited Too alkaline Too sandy Excess salt	1.00 0.50 0.02
DeE: Daggerhill	45	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too alkaline Too sandy	1.00 1.00 0.50
Satatton	40	Very limited Too sandy Excess salt Excess sodium	1.00 1.00 1.00	Very limited Droughty Excess salt Excess sodium	1.00 1.00 1.00	Very limited Excess salt Excess sodium Too sandy	1.00 1.00 0.50
DfB: Delfina	90	Very limited Too dry Infrequent flooding Too sandy	1.00 1.00 0.50	Very limited Too dry	1.00	Very limited Too dry	1.00
DnB: Delfina	95	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DrA: Dietrich	90	Very limited Too sandy Infrequent flooding Too dry	1.00 1.00 0.29	Not limited		Somewhat limited Too sandy Too dry	0.50 0.29
DsB: Dietrich	90	Very limited Infrequent flooding Too sandy Too dry	1.00 0.50 0.29	Somewhat limited Droughty	0.06	Somewhat limited Too dry	0.29
DTE: Dune land	95	Not rated		Not rated		Very limited Too dry Too sandy	1.00 0.50
DU: Dune land	95	Not rated		Not rated		Very limited Too dry Too sandy	1.00 0.50
DXC: Dune land	55	Not rated		Not rated		Very limited Too dry Too sandy	1.00 0.50
Satatton	42	Very limited Too sandy Excess salt Excess sodium	1.00 1.00 1.00	Very limited Droughty Excess salt Excess sodium	1.00 1.00 1.00	Very limited Excess salt Excess sodium Too sandy	1.00 1.00 0.50
EdA: Edroy	95	Very limited Ponding Infrequent flooding	1.00 1.00	Somewhat limited Ponding	0.50	Very limited Excess salt Ponding	1.00 0.50
EsA: Estella	80	Very limited Too sandy Infrequent flooding Too dry	1.00 1.00 0.53	Somewhat limited Droughty	0.68	Somewhat limited Too dry Too sandy	0.53 0.50
FaC: Falfurrias	90	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too sandy	1.00 0.50

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FaE: Falfurrias	90	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too sandy	1.00 1.00 0.50
FmC: Falfurrias	45	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too sandy	1.00 1.00 0.50
Atiras	30	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.68	Very limited Too dry Too sandy Too acid	1.00 0.50 0.01
Medanito	20	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.25	Very limited Too dry Too sandy	1.00 1.00 0.50
FoD: Falfurrias	60	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too sandy	1.00 1.00 0.50
Cayo	30	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry Too alkaline	1.00 1.00
FtD: Falfurrias	60	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too sandy	1.00 1.00 0.50
Topo	30	Very limited Infrequent flooding Excess sodium Ponding Excess salt	1.00 1.00 0.50 0.27	Very limited Excess sodium Droughty Ponding Excess salt	1.00 0.82 0.50 0.27	Very limited Excess sodium Excess salt Too alkaline	1.00 1.00 1.00
GeB: Gertrudis	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GhE: Greenhill	85	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too sandy Too acid	1.00 0.50 0.04
GmE: Greenhill	50	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too sandy Too acid	1.00 0.50 0.04
Mustang	41	Very limited Too sandy Infrequent flooding Ponding	1.00 1.00 0.50	Very limited Droughty Ponding	1.00 0.50	Somewhat limited Too sandy	0.50
GRE: Riverwash	55	Not rated		Not rated		Not rated	
Gullied land	35	Not rated		Not rated		Not rated	
IcA: Incell	90	Very limited Infrequent flooding Ponding	1.00 0.50	Somewhat limited Ponding	0.50	Not limited	
LaC: Lalinda	90	Very limited Too dry Infrequent flooding Excess salt	1.00 1.00 0.14	Very limited Too dry Excess salt	1.00 0.14	Very limited Too dry Excess salt Too alkaline	1.00 1.00 1.00
LpC: Lopeno	40	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Somewhat limited Too dry	0.56	Very limited Too dry Too sandy	1.00 0.50
Potrero	28	Very limited Too sandy Infrequent flooding Too dry	1.00 1.00 0.53	Not limited		Somewhat limited Too dry Too sandy	0.53 0.50
Arenisco	22	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 1.00	Very limited Too dry Too sandy	1.00 0.50

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LsC: Lopeno	55	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Too dry	0.56	Too dry	1.00
		Too dry	1.00			Too sandy	0.50
Sauce1	40	Infrequent flooding	1.00	Very limited Droughty	1.00	Very limited Excess salt	1.00
		Excess salt	1.00	Excess salt	1.00	Too alkaline	1.00
		Ponding	0.50	Ponding	0.50	Excess sodium	0.37
LzC: Lopeno	56	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Too dry	0.56	Too dry	1.00
		Too dry	1.00			Too sandy	0.50
Sauz	35	Infrequent flooding	1.00	Somewhat limited Excess sodium	0.19	Very limited Excess sodium	1.00
		Too sandy	0.50	Droughty	0.15	Excess salt	1.00
		Too dry	0.14			Too dry	0.14
MaA: Madre	45	Very limited		Very limited		Very limited	
		Too sandy	1.00	Droughty	1.00	Excess sodium	1.00
		Infrequent flooding	1.00	Ponding	0.50	Too sandy	0.50
Malaquite	39	Ponding	0.50	Excess sodium	0.14		
		Excess sodium	0.07				
MnB: Madre	48	Very limited		Very limited		Very limited	
		Too sandy	1.00	Droughty	1.00	Excess sodium	1.00
		Infrequent flooding	1.00	Ponding	0.50	Too sandy	0.50
Panam	43	Ponding	0.50	Excess sodium	0.14		
		Excess sodium	0.07				
Panam	43	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Droughty	0.32	Too dry	1.00
		Too dry	1.00	Too dry	0.06	Too sandy	0.50
Panam	43	Infrequent flooding	1.00				

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MoA: Montealto	90	Very limited Infrequent flooding Excess salt Ponding	1.00 0.52 0.50	Somewhat limited Excess salt Ponding	0.52 0.50	Very limited Excess salt Too alkaline	1.00 1.00
MsA: Mustang	85	Very limited Too sandy Infrequent flooding Ponding	1.00 1.00 0.50	Very limited Droughty Ponding	1.00 0.50	Somewhat limited Too sandy	0.50
MtB: Mustang	49	Very limited Too sandy Infrequent flooding Ponding	1.00 1.00 0.50	Very limited Droughty Ponding	1.00 0.50	Somewhat limited Too sandy	0.50
Padre	42	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Somewhat limited Droughty Too dry	0.32 0.06	Very limited Too dry Too sandy Too acid	1.00 0.50 0.14
MuB: Mustang	50	Very limited Too sandy Infrequent flooding Ponding	1.00 1.00 0.50	Very limited Droughty Ponding	1.00 0.50	Very limited Too alkaline Too sandy Excess salt	1.00 0.50 0.02
Panam	40	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Somewhat limited Droughty Too dry	0.32 0.06	Very limited Too dry Too alkaline Too sandy	1.00 1.00 0.50
NaA: Narta	90	Very limited Infrequent flooding	1.00	Very limited Droughty	1.00	Very limited Too alkaline Excess sodium	1.00 0.63
NeA: Novillo	88	Not rated		Somewhat limited Droughty Ponding	0.99 0.50	Somewhat limited Ponding	0.50

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NfC: Nueces	90	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.06	Very limited Too dry Too sandy	1.00 0.50
NsC: Nueces	65	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.06	Very limited Too dry Too sandy	1.00 0.50
Sarita	25	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.68	Very limited Too dry Too sandy	1.00 0.50
OfA: Orelia	95	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
PaA: Padrones	90	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.30	Very limited Too dry Too sandy Too acid	1.00 0.50 0.01
PbA: Palobia	90	Very limited Too dry Infrequent flooding Too sandy	1.00 1.00 0.50	Very limited Too dry Droughty	1.00 0.22	Very limited Too dry	1.00
PbB: Palobia	90	Very limited Too dry Infrequent flooding Too sandy	1.00 1.00 0.50	Very limited Too dry Droughty	1.00 0.22	Very limited Too dry	1.00
PeB: Palobia	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry Droughty	1.00 0.44	Very limited Too dry Excess salt	1.00 0.02

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PfA: Palobia	55	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry Droughty	1.00 0.44	Very limited Too dry Excess salt	1.00 0.02
Colmena	35	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
PfB: Palobia	55	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry Droughty	1.00 0.44	Very limited Too dry Excess salt	1.00 0.02
Colmena	35	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
PgA: Papagua	90	Very limited Infrequent flooding Ponding	1.00 0.50	Somewhat limited Ponding	0.50	Not limited	
PIT: Pits, quarry	90	Not rated		Not rated		Not rated	
PnC: Point Isabel	90	Very limited Too dry Infrequent flooding Excess salt	1.00 1.00 0.52	Very limited Too dry Excess salt Droughty	1.00 0.52 0.24	Very limited Too dry Excess salt Too alkaline Excess sodium	1.00 1.00 1.00 0.04
PoB: Portalto	90	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.68	Very limited Too dry Excess salt Too sandy	1.00 0.55 0.50
PrC: Potrero	45	Very limited Too sandy Infrequent flooding Too dry	1.00 1.00 0.53	Not limited		Somewhat limited Too dry Too sandy	0.53 0.50

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Lopeno	33	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Somewhat limited Too dry	0.56	Very limited Too dry Too sandy	1.00 0.50
Noria	17	Very limited Too sandy Infrequent flooding Excess salt Excess sodium Ponding	1.00 1.00 1.00 1.00 0.50	Very limited Droughty Excess salt Excess sodium Ponding	1.00 1.00 1.00 0.50	Very limited Excess sodium Excess salt Too alkaline Too sandy	1.00 1.00 1.00 0.50
PtB: Premont	90	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00
QuA: Quiteria	90	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.05	Very limited Too dry Too sandy	1.00 0.50
RaB: Ramita	85	Very limited Too sandy Infrequent flooding	1.00 1.00	Somewhat limited Droughty	0.01	Somewhat limited Too sandy Too acid	0.50 0.08
RbB: Ramita	60	Very limited Infrequent flooding Too sandy	1.00 0.50	Somewhat limited Droughty	0.01	Somewhat limited Too acid	0.08
Bordas	35	Very limited Infrequent flooding Too sandy Ponding	1.00 0.50 0.50	Somewhat limited Ponding	0.50	Somewhat limited Too acid	0.04
RoB: Rockport	90	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Somewhat limited Too dry Droughty	0.91 0.32	Very limited Too dry Too sandy	1.00 0.50
SA: Salt flats, very frequently flooded	90	Not rated		Not rated		Not rated	

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SF: Salt flats, ponded	90	Not rated		Not rated		Not rated	
SnC: Sarita	90	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.68	Very limited Too dry Too sandy	1.00 0.50
SrC: Sarita	70	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.68	Very limited Too dry Too sandy	1.00 0.50
Cayo	20	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry Too alkaline	1.00 1.00
SsC: Sarita	75	Very limited Too sandy Too dry Infrequent flooding	1.00 1.00 1.00	Very limited Too dry Droughty	1.00 0.68	Very limited Too dry Too sandy	1.00 0.50
Topo	20	Very limited Infrequent flooding Excess sodium Ponding Excess salt	1.00 1.00 0.50 0.27	Very limited Excess sodium Droughty Ponding Excess salt	1.00 0.82 0.50 0.27	Very limited Excess sodium Excess salt Too alkaline	1.00 1.00 1.00
StA: Satatton	90	Very limited Too sandy Excess salt Excess sodium	1.00 1.00 1.00	Very limited Droughty Excess salt Excess sodium	1.00 1.00 1.00	Very limited Excess salt Excess sodium Too sandy	1.00 1.00 0.50
SuA: Sauce1	95	Very limited Infrequent flooding Excess salt Ponding	1.00 1.00 0.50	Very limited Droughty Excess salt Ponding	1.00 1.00 0.50	Very limited Excess salt Too alkaline Excess sodium	1.00 1.00 0.37
SxB: Sauce1	65	Very limited Infrequent flooding Excess salt Ponding	1.00 1.00 0.50	Very limited Droughty Excess salt Ponding	1.00 1.00 0.50	Very limited Excess salt Too alkaline Excess sodium	1.00 1.00 0.37

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Potrero	25	Very limited Too sandy Infrequent flooding Too dry	1.00 1.00 0.53	Not limited		Somewhat limited Too dry Too sandy	0.53 0.50
SyA: Sauz	90	Very limited Infrequent flooding Too sandy Too dry Excess sodium	1.00 0.50 0.14 0.09	Somewhat limited Excess sodium Droughty	0.19 0.15	Very limited Excess sodium Excess salt Too dry	1.00 1.00 0.14
SzA: Sauz	50	Very limited Infrequent flooding Too sandy Too dry Excess sodium	1.00 0.50 0.14 0.09	Somewhat limited Excess sodium Droughty	0.19 0.15	Very limited Excess sodium Excess salt Too dry	1.00 1.00 0.14
Sauce1	40	Very limited Infrequent flooding Excess salt Ponding	1.00 1.00 0.50	Very limited Droughty Excess salt Ponding	1.00 1.00 0.50	Very limited Excess salt Too alkaline Excess sodium	1.00 1.00 0.37
TaA: Tatton	95	Very limited Too sandy Excess salt Excess sodium	1.00 1.00 1.00	Very limited Excess salt Excess sodium Droughty	1.00 1.00 0.90	Very limited Excess salt Excess sodium Too sandy	1.00 1.00 0.50
TBA: Tatton	55	Very limited Too sandy Excess salt Excess sodium Long flooding	1.00 1.00 1.00 0.50	Very limited Excess salt Excess sodium Droughty Flooding	1.00 1.00 0.87 0.50	Very limited Excess salt Excess sodium Too sandy	1.00 1.00 0.50
Beaches, washover fan	35	Not rated		Not rated		Very limited Excess salt Excess sodium Too sandy	1.00 1.00 0.50
ToA: Topo	90	Very limited Infrequent flooding Excess sodium Ponding Excess salt	1.00 1.00 0.50 0.27	Very limited Excess sodium Droughty Ponding Excess salt	1.00 0.82 0.50 0.27	Very limited Excess sodium Excess salt Too alkaline	1.00 1.00 1.00

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TsA: Topo	60	Very limited		Very limited		Very limited	
		Infrequent flooding	1.00	Excess sodium	1.00	Excess sodium	1.00
		Excess sodium	1.00	Droughty	0.82	Excess salt	1.00
		Ponding	0.50	Ponding	0.50	Too alkaline	1.00
		Excess salt	0.27	Excess salt	0.27		
Sauce1	30	Very limited		Very limited		Very limited	
		Infrequent flooding	1.00	Droughty	1.00	Excess salt	1.00
		Excess salt	1.00	Excess salt	1.00	Too alkaline	1.00
		Ponding	0.50	Ponding	0.50	Excess sodium	0.37
TwA: Twinpalms	55	Very limited		Very limited		Very limited	
		Too sandy	1.00	Droughty	1.00	Too dry	1.00
		Too dry	1.00	Too dry	0.35	Too sandy	0.50
		Infrequent flooding	1.00				
Yarborough	40	Very limited		Very limited		Very limited	
		Excess salt	1.00	Droughty	1.00	Excess salt	1.00
		Excess sodium	1.00	Excess salt	1.00	Excess sodium	1.00
		Too dry	0.14	Excess sodium	1.00	Too dry	0.14
VaA: Victine	97	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00				
VcA: Victoria	85	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Excess salt	0.16
VcB: Victoria	95	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Excess salt	0.16
W: Water	100	Not rated		Not rated		Not rated	
YaA: Yarborough	90	Very limited		Very limited		Very limited	
		Excess salt	1.00	Droughty	1.00	Excess salt	1.00
		Excess sodium	1.00	Excess salt	1.00	Excess sodium	1.00
		Too dry	0.14	Excess sodium	1.00	Too dry	0.14

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 16.--Riparian Herbaceous Plants, Riparian Shrubs, Vines, and Trees, and Freshwater Wetland Plants for Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Riparian Herbaceous Plants		Riparian Shrubs, Vines, and Trees		Freshwater Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
YtC: Yturria	95	Very limited Too dry Infrequent flooding	1.00 1.00	Very limited Too dry	1.00	Very limited Too dry	1.00

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants for Wildlife Habitat

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited Excess salt Excess sodium	1.00 1.00	Somewhat limited Low sodium Too dry	0.95 0.76	Somewhat limited Low sodium	0.95
AcC: Arenisco	85	Very limited Too sandy Seepage Too dry	1.00 1.00 0.56	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Low salt Low sodium Seepage Too dry	1.00 1.00 1.00 1.00 0.56
AnC: Arenisco	70	Very limited Too sandy Seepage Too dry	1.00 1.00 0.56	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Low salt Low sodium Seepage Too dry	1.00 1.00 1.00 1.00 0.56
Topo	20	Very limited Excess sodium Excess salt Too alkaline Seepage	1.00 1.00 1.00 0.76	Somewhat limited Low salt	0.75	Somewhat limited Seepage Low salt	0.76 0.75
ArA: Arrada	90	Very limited Excess salt Excess sodium Too alkaline	1.00 1.00 1.00	Not limited		Not limited	
AsC: Arrada	55	Very limited Excess salt Excess sodium Too alkaline	1.00 1.00 1.00	Not limited		Not limited	
Lalinda	35	Very limited Too dry Excess salt Too alkaline Seepage	1.00 1.00 1.00 0.07	Very limited Too dry Low sodium Low salt	1.00 1.00 0.88	Very limited Too dry Low sodium Low salt Seepage	1.00 1.00 0.88 0.07
BA: Baffin	95	Very limited Excess salt Excess sodium Ponding Seepage	1.00 1.00 0.50 0.07	Somewhat limited Ponding	0.50	Somewhat limited Ponding Seepage	0.50 0.07

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BbA: Banquete	90	Very limited Too dry Too acid	1.00 0.04	Very limited Too dry Low salt Low sodium Too acid	1.00 1.00 1.00 0.04	Very limited Too dry Low salt Low sodium Too acid	1.00 1.00 1.00 0.04
BdA: Barrada	90	Very limited Excess salt Excess sodium Too alkaline	1.00 1.00 1.00	Not limited		Not limited	
BE1: Beaches	90	Very limited Too sandy Excess salt Excess sodium Seepage	1.00 1.00 1.00 1.00	Somewhat limited Low sodium Too sandy	0.65 0.50	Very limited Too sandy Seepage Low sodium	1.00 1.00 0.65
BE2: Beaches	90	Very limited Too sandy Excess salt Excess sodium Seepage	1.00 1.00 1.00 1.00	Somewhat limited Low sodium Too sandy	0.65 0.50	Very limited Too sandy Seepage Low sodium	1.00 1.00 0.65
BE3: Beaches	90	Very limited Too sandy Excess salt Excess sodium Seepage	1.00 1.00 1.00 1.00	Somewhat limited Low sodium Too sandy	0.65 0.50	Very limited Too sandy Seepage Low sodium	1.00 1.00 0.65
BE4: Beaches	90	Very limited Too sandy Excess salt Excess sodium Seepage	1.00 1.00 1.00 1.00	Somewhat limited Low sodium Too sandy	0.65 0.50	Very limited Too sandy Seepage Low sodium	1.00 1.00 0.65
BrA: Bordas	95	Somewhat limited Seepage Too sandy Too acid	0.76 0.50 0.04	Very limited Low salt Low sodium Too acid	1.00 1.00 0.04	Very limited Low salt Low sodium Seepage Too sandy Too acid	1.00 1.00 0.76 0.50 0.04
CaA: Calallen	85	Very limited Too dry Seepage	1.00 0.07	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 0.07

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CeA: Carreta	95	Very limited Too dry Excess salt Excess sodium Seepage	1.00 1.00 1.00 0.07	Very limited Too dry Low sodium	1.00 1.00 0.73	Very limited Too dry Low sodium Seepage	1.00 1.00 0.73 0.07
ChA: Cayo	90	Very limited Too dry Too alkaline Seepage	1.00 1.00 1.00 0.76	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 0.76
CkA: Clareville	90	Very limited Too dry Seepage	1.00 1.00 0.07	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 0.07
CkB: Clareville	90	Very limited Too dry Seepage	1.00 1.00 0.07	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 0.07
CmA: Colmena	90	Very limited Too dry Seepage	1.00 1.00 0.76	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 0.76
CmB: Colmena	90	Very limited Too dry Seepage	1.00 1.00 0.76	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 0.76
CnA: Crane11	85	Very limited Too dry	1.00	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00 1.00	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00 1.00
CnB: Crane11	90	Very limited Too dry	1.00	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00 1.00	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00 1.00

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CrA: Czar	90	Very limited Too dry Seepage	1.00 0.07	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 0.07
CrB: Czar	90	Very limited Too dry Seepage	1.00 0.07	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 0.07
CzA: Czar	90	Very limited Too dry Seepage	1.00 0.07	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 0.07
DaE: Daggerhill	86	Very limited Too sandy Too dry Seepage Too alkaline Slope	1.00 1.00 1.00 1.00 0.68	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 1.00
DdE: Daggerhill	50	Very limited Too sandy Too dry Seepage Too alkaline Slope	1.00 1.00 1.00 1.00 0.68	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 1.00
Mustang	41	Very limited Too sandy Seepage Too alkaline Excess salt	1.00 1.00 1.00 1.00 0.02	Very limited Low salt Low sodium Too sandy	1.00 1.00 0.50	Very limited Too sandy Low salt Low sodium Seepage	1.00 1.00 1.00 1.00
DeE: Daggerhill	45	Very limited Too sandy Too dry Seepage Too alkaline Slope	1.00 1.00 1.00 1.00 0.32	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 1.00
Satatton	40	Very limited Too sandy Excess salt Excess sodium	1.00 1.00 1.00	Somewhat limited Too sandy	0.50	Very limited Too sandy	1.00

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DfB: Delfina	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.76	Low salt	1.00	Low salt	1.00
		Too sandy	0.50	Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
						Too sandy	0.50
DnB: Delfina	95	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.76	Low salt	1.00	Low salt	1.00
				Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
DrA: Dietrich	90	Very limited		Very limited		Very limited	
		Too sandy	1.00	Low salt	1.00	Too sandy	1.00
		Seepage	0.76	Low sodium	1.00	Low salt	1.00
				Too sandy	0.50	Low sodium	1.00
				Too dry	0.29	Seepage	0.76
DsB: Dietrich	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.76	Low salt	1.00	Low salt	1.00
		Too sandy	0.50	Low sodium	1.00	Low sodium	1.00
				Too dry	0.29	Seepage	0.76
						Too sandy	0.50
DTE: Dune land	95	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Too dry	1.00	Low salt	1.00	Too dry	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
				Too sandy	0.50	Low sodium	1.00
						Seepage	1.00
DU: Dune land	95	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Too dry	1.00	Low salt	1.00	Too dry	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
		Slope	1.00	Too sandy	0.50	Low sodium	1.00
						Seepage	1.00
DXC: Dune land	55	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Too dry	1.00	Low salt	1.00	Too dry	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
				Too sandy	0.50	Low sodium	1.00
						Seepage	1.00
Satatton	42	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Too sandy	0.50	Too sandy	1.00
		Excess salt	1.00				
		Excess sodium	1.00				

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
EdA: Edroy	95	Very limited Excess salt Ponding	1.00 0.50	Very limited Low sodium Low salt Ponding	1.00 1.00 0.50	Very limited Low sodium Low salt Ponding	1.00 1.00 0.50
EsA: Estella	80	Very limited Too sandy Seepage	1.00 1.00	Very limited Low salt Low sodium Too dry Too sandy	1.00 1.00 0.53 0.50	Very limited Too sandy Low salt Low sodium Seepage	1.00 1.00 1.00 1.00
FaC: Falfurrias	90	Very limited Too sandy Too dry Seepage Slope	1.00 1.00 1.00 0.08	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 1.00
FaE: Falfurrias	90	Very limited Too sandy Too dry Seepage Slope	1.00 1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 1.00
FmC: Falfurrias	45	Very limited Too sandy Too dry Seepage	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00
Atras	30	Very limited Too sandy Too dry Seepage Too acid	1.00 1.00 1.00 0.01	Very limited Too dry Low salt Low sodium Too sandy Too acid	1.00 1.00 1.00 0.50 0.01	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 1.00
Medanito	20	Very limited Too sandy Too dry Seepage	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00
FoD: Falfurrias	60	Very limited Too sandy Too dry Seepage	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Cayo	30	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Too alkaline	1.00	Low salt	1.00	Low salt	1.00
		Seepage	0.76	Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
FtD: Falfurrias	60	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Too dry	1.00	Low salt	1.00	Too dry	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
		Slope	0.32	Too sandy	0.50	Low sodium	1.00
						Seepage	1.00
Topo	30	Very limited		Somewhat limited		Somewhat limited	
		Excess sodium	1.00	Low salt	0.75	Seepage	0.76
		Excess salt	1.00			Low salt	0.75
		Too alkaline	1.00				
		Seepage	0.76				
GeB: Gertrudis	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.07	Low salt	1.00	Low salt	1.00
				Low sodium	1.00	Low sodium	1.00
						Seepage	0.07
GhE: Greenhill	85	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Too dry	1.00	Low salt	1.00	Too dry	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
		Slope	0.68	Too sandy	0.50	Low sodium	1.00
		Too acid	0.04	Too acid	0.04	Seepage	1.00
GmE: Greenhill	50	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Too dry	1.00	Low salt	1.00	Too dry	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
		Slope	0.68	Too sandy	0.50	Low sodium	1.00
		Too acid	0.04	Too acid	0.04	Seepage	1.00
Mustang	41	Very limited		Very limited		Very limited	
		Too sandy	1.00	Low salt	1.00	Too sandy	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
				Too sandy	0.50	Low sodium	1.00
						Seepage	1.00
GRE: Riverwash	55	Not rated		Not rated		Not rated	
Gullied land	35	Not rated		Not rated		Not rated	

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Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
IcA: Incell	90	Not limited		Very limited Low salt Low sodium	1.00 1.00	Very limited Low salt Low sodium	1.00 1.00
LaC: Lalinda	90	Very limited Too dry Excess salt Too alkaline Seepage	1.00 1.00 1.00 1.00 0.07	Very limited Too dry Low sodium Low salt	1.00 1.00 1.00 0.88	Very limited Too dry Low sodium Low salt Seepage	1.00 1.00 1.00 0.88 0.07
LpC: Lopeno	40	Very limited Too sandy Seepage Too dry	1.00 1.00 1.00 0.56	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 1.00 0.50	Very limited Too sandy Low salt Low sodium Seepage Too dry	1.00 1.00 1.00 1.00 1.00 0.56
Potrero	28	Very limited Too sandy Seepage	1.00 1.00 1.00	Very limited Low salt Low sodium Too dry Too sandy	1.00 1.00 1.00 0.53 0.50	Very limited Too sandy Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 1.00
Arenisco	22	Very limited Too sandy Too dry Seepage	1.00 1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 1.00 1.00
LsC: Lopeno	55	Very limited Too sandy Seepage Too dry	1.00 1.00 1.00 0.56	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 1.00 0.50	Very limited Too sandy Low salt Low sodium Seepage Too dry	1.00 1.00 1.00 1.00 1.00 0.56
Sauce1	40	Very limited Excess salt Too alkaline Excess sodium Seepage	1.00 1.00 1.00 0.37 0.07	Very limited Low sodium	1.00	Very limited Low sodium Seepage	1.00 1.00 0.07
LzC: Lopeno	56	Very limited Too sandy Seepage Too dry	1.00 1.00 1.00 0.56	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 1.00 0.50	Very limited Too sandy Low salt Low sodium Seepage Too dry	1.00 1.00 1.00 1.00 1.00 0.56

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sauz	35	Very limited		Very limited		Very limited	
		Excess sodium	1.00	Low salt	1.00	Low salt	1.00
		Seepage	1.00	Low sodium	0.91	Seepage	1.00
		Excess salt	1.00	Too dry	0.14	Low sodium	0.91
		Too sandy	0.50			Too sandy	0.50
MaA: Madre	45	Very limited		Very limited		Very limited	
		Too sandy	1.00	Low salt	1.00	Too sandy	1.00
		Seepage	1.00	Low sodium	0.93	Low salt	1.00
		Excess sodium	1.00	Too sandy	0.50	Seepage	1.00
						Low sodium	0.93
Malaquite	39	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Too sandy	0.50	Too sandy	1.00
		Excess salt	1.00	Low sodium	0.01	Low sodium	0.01
		Excess sodium	1.00				
		Too alkaline	1.00				
MnB: Madre	48	Very limited		Very limited		Very limited	
		Too sandy	1.00	Low salt	1.00	Too sandy	1.00
		Seepage	1.00	Low sodium	0.93	Low salt	1.00
		Excess sodium	1.00	Too sandy	0.50	Seepage	1.00
						Low sodium	0.93
Panam	43	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Seepage	1.00	Low salt	1.00	Low salt	1.00
		Too dry	0.06	Low sodium	1.00	Low sodium	1.00
				Too sandy	0.50	Seepage	1.00
						Too dry	0.06
MoA: Montealto	90	Very limited		Very limited		Very limited	
		Excess salt	1.00	Low sodium	1.00	Low sodium	1.00
		Too alkaline	1.00	Low salt	0.50	Low salt	0.50
MsA: Mustang	85	Very limited		Very limited		Very limited	
		Too sandy	1.00	Low salt	1.00	Too sandy	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
				Too sandy	0.50	Low sodium	1.00
						Seepage	1.00
MtB: Mustang	49	Very limited		Very limited		Very limited	
		Too sandy	1.00	Low salt	1.00	Too sandy	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
				Too sandy	0.50	Low sodium	1.00
						Seepage	1.00
Padre	42	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Seepage	1.00	Low salt	1.00	Low salt	1.00
		Too acid	0.14	Low sodium	1.00	Low sodium	1.00
		Too dry	0.06	Too sandy	0.50	Seepage	1.00
				Too acid	0.14	Too acid	0.14

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Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MuB: Mustang	50	Very limited Too sandy Seepage Too alkaline Excess salt	1.00 1.00 1.00 0.02	Very limited Low salt Low sodium Too sandy	1.00 1.00 0.50	Very limited Too sandy Low salt Low sodium Seepage	1.00 1.00 1.00 1.00
Panam	40	Very limited Too sandy Seepage Too alkaline Too dry	1.00 1.00 1.00 0.06	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Low salt Low sodium Seepage Too dry	1.00 1.00 1.00 1.00 0.06
NaA: Narta	90	Very limited Too alkaline Excess sodium Seepage	1.00 0.63 0.07	Very limited Low sodium Low salt	1.00 1.00	Very limited Low sodium Low salt Seepage	1.00 1.00 0.07
NeA: Novillo	88	Very limited Seepage Ponding	1.00 0.50	Very limited Low salt Low sodium Ponding	1.00 1.00 0.50	Very limited Low salt Low sodium Seepage Ponding	1.00 1.00 1.00 0.50
NfC: Nueces	90	Very limited Too sandy Too dry Seepage	1.00 1.00 0.76	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 0.76
NsC: Nueces	65	Very limited Too sandy Too dry Seepage	1.00 1.00 0.76	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 0.76
Sarita	25	Very limited Too sandy Too dry Seepage	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00
OfA: Orelia	95	Very limited Too dry Seepage	1.00 0.05	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 0.05

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PaA: Padrones	90	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Too dry	1.00	Low salt	1.00	Too dry	1.00
		Seepage	0.76	Low sodium	1.00	Low salt	1.00
		Too acid	0.01	Too sandy	0.50	Low sodium	1.00
				Too acid	0.01	Seepage	0.76
PbA: Palobia	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.76	Low salt	1.00	Low salt	1.00
		Too sandy	0.50	Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
						Too sandy	0.50
PbB: Palobia	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.76	Low salt	1.00	Low salt	1.00
		Too sandy	0.50	Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
						Too sandy	0.50
PeB: Palobia	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.76	Low salt	1.00	Low salt	1.00
		Excess salt	0.02	Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
						Too sandy	0.50
PfA: Palobia	55	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.76	Low salt	1.00	Low salt	1.00
		Excess salt	0.02	Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
Colmena	35	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.76	Low salt	1.00	Low salt	1.00
				Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
PFB: Palobia	55	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.76	Low salt	1.00	Low salt	1.00
		Excess salt	0.02	Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
Colmena	35	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.76	Low salt	1.00	Low salt	1.00
				Low sodium	1.00	Low sodium	1.00
						Seepage	0.76

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Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PgA: Papagua	90	Somewhat limited Seepage	0.76	Very limited Low salt Low sodium	1.00 1.00	Very limited Low salt Low sodium Seepage	1.00 1.00 0.76
PIT: Pits, quarry	90	Not rated		Not rated		Not rated	
PnC: Point Isabel	90	Very limited Too dry Excess salt Too alkaline Slope Excess sodium	1.00 1.00 1.00 0.32 0.04	Very limited Too dry Low sodium Low salt	1.00 1.00 0.50	Very limited Too dry Low sodium Low salt Slope	1.00 1.00 0.50 0.32
PoB: Portalto	90	Very limited Too sandy Too dry Seepage Excess salt	1.00 1.00 1.00 0.55	Very limited Too dry Low sodium Low salt Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low sodium Seepage Low salt	1.00 1.00 1.00 1.00 1.00
PrC: Potrero	45	Very limited Too sandy Seepage	1.00 1.00	Very limited Low salt Low sodium Too dry Too sandy	1.00 1.00 0.53 0.50	Very limited Too sandy Low salt Low sodium Seepage	1.00 1.00 1.00 1.00
Lopeno	33	Very limited Too sandy Seepage Too dry	1.00 1.00 0.56	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 0.50	Very limited Too sandy Low salt Low sodium Seepage Too dry	1.00 1.00 1.00 1.00 0.56
Noria	17	Very limited Too sandy Seepage Excess sodium Excess salt Too alkaline	1.00 1.00 1.00 1.00 1.00	Somewhat limited Too sandy	0.50	Very limited Too sandy Seepage	1.00 1.00
PtB: Premont	90	Very limited Too dry Seepage	1.00 0.76	Very limited Too dry Low salt Low sodium	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 0.76

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
QuA: Quiteria	90	Very limited Too sandy Too dry Seepage	1.00 1.00 0.76	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 1.00 0.76
RaB: Ramita	85	Very limited Too sandy Seepage Too acid	1.00 0.76 0.08	Very limited Low salt Low sodium Too sandy Too acid	1.00 1.00 0.50 0.08	Very limited Too sandy Low salt Low sodium Seepage Too acid	1.00 1.00 1.00 1.00 0.76 0.08
RbB: Ramita	60	Somewhat limited Seepage Too sandy Too acid	0.76 0.50 0.08	Very limited Low salt Low sodium Too acid	1.00 1.00 0.08	Very limited Low salt Low sodium Seepage Too sandy Too acid	1.00 1.00 1.00 0.76 0.50 0.08
Bordas	35	Somewhat limited Seepage Too sandy Too acid	0.76 0.50 0.04	Very limited Low salt Low sodium Too acid	1.00 1.00 0.04	Very limited Low salt Low sodium Seepage Too sandy Too acid	1.00 1.00 1.00 0.76 0.50 0.04
RoB: Rockport	90	Very limited Too sandy Seepage Too dry	1.00 1.00 0.91	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 1.00 0.50	Very limited Too sandy Low salt Low sodium Seepage Too dry	1.00 1.00 1.00 1.00 1.00 0.91
SA: Salt flats, very frequently flooded	90	Not rated		Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated		Not rated	
SnC: Sarita	90	Very limited Too sandy Too dry Seepage	1.00 1.00 1.00	Very limited Too dry Low salt Low sodium Too sandy	1.00 1.00 1.00 1.00 0.50	Very limited Too sandy Too dry Low salt Low sodium Seepage	1.00 1.00 1.00 1.00 1.00 1.00

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SrC: Sarita	70	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Too dry	1.00	Low salt	1.00	Too dry	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
				Too sandy	0.50	Low sodium	1.00
						Seepage	1.00
Cayo	20	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Too alkaline	1.00	Low salt	1.00	Low salt	1.00
		Seepage	0.76	Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
SsC: Sarita	75	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Too dry	1.00	Low salt	1.00	Too dry	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
				Too sandy	0.50	Low sodium	1.00
						Seepage	1.00
Topo	20	Very limited		Somewhat limited		Somewhat limited	
		Excess sodium	1.00	Low salt	0.75	Seepage	0.76
		Excess salt	1.00			Low salt	0.75
		Too alkaline	1.00				
		Seepage	0.76				
StA: Satatton	90	Very limited		Somewhat limited		Very limited	
		Too sandy	1.00	Too sandy	0.50	Too sandy	1.00
		Excess salt	1.00			Seepage	1.00
		Excess sodium	1.00				
		Seepage	1.00				
SuA: Sauce1	95	Very limited		Very limited		Very limited	
		Excess salt	1.00	Low sodium	1.00	Low sodium	1.00
		Too alkaline	1.00			Seepage	0.07
		Excess sodium	0.37				
		Seepage	0.07				
SxB: Sauce1	65	Very limited		Very limited		Very limited	
		Excess salt	1.00	Low sodium	1.00	Low sodium	1.00
		Too alkaline	1.00			Seepage	0.07
		Excess sodium	0.37				
		Seepage	0.07				
Potrero	25	Very limited		Very limited		Very limited	
		Too sandy	1.00	Low salt	1.00	Too sandy	1.00
		Seepage	1.00	Low sodium	1.00	Low salt	1.00
				Too dry	0.53	Low sodium	1.00
				Too sandy	0.50	Seepage	1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SyA: Sauz	90	Very limited Excess sodium Seepage Excess salt Too sandy	1.00 1.00 1.00 0.50	Very limited Low salt Low sodium Too dry	1.00 0.91 0.14	Very limited Low salt Seepage Low sodium Too sandy	1.00 1.00 0.91 0.50
SzA: Sauz	50	Very limited Excess sodium Seepage Excess salt Too sandy	1.00 1.00 1.00 0.50	Very limited Low salt Low sodium Too dry	1.00 0.91 0.14	Very limited Low salt Seepage Low sodium Too sandy	1.00 1.00 0.91 0.50
Sauce1	40	Very limited Excess salt Too alkaline Excess sodium Seepage	1.00 1.00 0.37 0.07	Very limited Low sodium	1.00	Very limited Low sodium Seepage	1.00 0.07
TaA: Tatton	95	Very limited Too sandy Excess salt Excess sodium Seepage	1.00 1.00 1.00 1.00	Somewhat limited Too sandy	0.50	Very limited Too sandy Seepage	1.00 1.00
TBA: Tatton	55	Very limited Too sandy Excess salt Excess sodium	1.00 1.00 1.00	Somewhat limited Too sandy	0.50	Very limited Too sandy	1.00
Beaches, washover fan	35	Very limited Too sandy Excess salt Excess sodium	1.00 1.00 1.00	Somewhat limited Too sandy	0.50	Very limited Too sandy	1.00
ToA: Topo	90	Very limited Excess sodium Excess salt Too alkaline Seepage	1.00 1.00 1.00 0.76	Somewhat limited Low salt	0.75	Somewhat limited Seepage Low salt	0.76 0.75
TsA: Topo	60	Very limited Excess sodium Excess salt Too alkaline Seepage	1.00 1.00 1.00 0.76	Somewhat limited Low salt	0.75	Somewhat limited Seepage Low salt	0.76 0.75
Sauce1	30	Very limited Excess salt Too alkaline Excess sodium Seepage	1.00 1.00 0.37 0.07	Very limited Low sodium	1.00	Very limited Low sodium Seepage	1.00 0.07

Table 17.--Irrigated Freshwater Wetland Plants, Saline Water Wetland Plants, and Irrigated Saline Water Wetland Plants For Wildlife Habitat--Continued

Map symbol and soil name	Pct. of map unit	Irrigated Freshwater Wetland Plants		Saline Water Wetland Plants		Irrigated Saline Water Wetland Plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TwA: Twinpalms	55	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too sandy	1.00
		Seepage	1.00	Low salt	1.00	Low salt	1.00
		Too dry	0.35	Low sodium	1.00	Low sodium	1.00
Yarborough	40	Too sandy		Too sandy	0.50	Seepage	1.00
						Too dry	0.35
		Very limited		Somewhat limited		Somewhat limited	
		Excess salt	1.00	Too dry	0.14	Seepage	0.76
VaA: Victine	97	Excess sodium	1.00				
		Seepage	0.76				
		Very limited		Very limited		Very limited	
VcA: Victoria	85	Too dry	1.00	Too dry	1.00	Too dry	1.00
		Excess salt	0.16	Low salt	1.00	Low salt	1.00
				Low sodium	1.00	Low sodium	1.00
VcB: Victoria	95	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Excess salt	0.16	Low salt	1.00	Low salt	1.00
				Low sodium	1.00	Low sodium	1.00
W: Water	100	Not rated		Not rated		Not rated	
YaA: Yarborough	90	Very limited		Somewhat limited		Somewhat limited	
		Excess salt	1.00	Too dry	0.14	Seepage	0.76
		Excess sodium	1.00				
		Seepage	0.76				
YtC: Yturria	95	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Seepage	0.76	Low salt	1.00	Low salt	1.00
		Slope	0.08	Low sodium	1.00	Low sodium	1.00
						Seepage	0.76
				Slope	0.08		

Table 18.--Dwellings and Small Commercial Buildings

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited Flooding Shrink-swell	1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Shrink-swell	1.00 1.00
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
AcC: Arenisco	85	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.61	Very limited Flooding	1.00
AnC: Arenisco	70	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.61	Very limited Flooding	1.00
Topo	20	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
ArA: Arrada	90	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
AsC: Arrada	55	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
Lalinda	35	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
BA: Baffin	95	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
BbA: Banquete	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00

Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BdA: Barrada	90	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Shrink-swell Subsidence risk	1.00 1.00 1.00 1.00 0.24	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 1.00
BE1: Beaches	90	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
BE2: Beaches	90	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
BE3: Beaches	90	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
BE4: Beaches	90	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
BrA: Bordas	95	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.78	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.74	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.78
CaA: Calallen	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.01	Somewhat limited Shrink-swell	0.50
CeA: Carreta	95	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
ChA: Cayo	90	Not limited		Not limited		Not limited	
CkA: Clareville	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00

Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CkB: Clareville	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
CmA: Colmena	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.01	Somewhat limited Shrink-swell	0.50
CmB: Colmena	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.01	Somewhat limited Shrink-swell	0.50
CnA: Crane11	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell Subsidence risk	1.00 0.01	Very limited Shrink-swell	1.00
CnB: Crane11	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell Subsidence risk	1.00 0.01	Very limited Shrink-swell	1.00
CrA: Czar	90	Not limited		Not limited		Not limited	
CrB: Czar	90	Not limited		Not limited		Not limited	
CzA: Czar	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.10	Somewhat limited Shrink-swell	0.50
DaE: Daggerhill	86	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding Slope	1.00 0.50
DdE: Daggerhill	50	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding Slope	1.00 0.50
Mustang	41	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
DeE: Daggerhill	45	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding Slope	1.00 0.12
Satatton	40	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00

Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DfB: Delfina	90	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
DnB: Delfina	95	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
DrA: Dietrich	90	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.81 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.42	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.81 0.50
DsB: Dietrich	90	Very limited Flooding Depth to saturated zone	1.00 0.81	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.81
DTE: Dune land	95	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
DU: Dune land	95	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding Slope	1.00 1.00
DXC: Dune land	55	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Satatton	42	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
EdA: Edroy	95	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
EsA: Estella	80	Somewhat limited Depth to saturated zone	0.39	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.39
FaC: Falfurrias	90	Not limited		Not limited		Not limited	
FaE: Falfurrias	90	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FmC: Falfurrias	45	Not limited		Not limited		Not limited	
Atiras	30	Not limited		Not limited		Not limited	
Medanito	20	Not limited		Not limited		Not limited	
FoD: Falfurrias	60	Not limited		Not limited		Not limited	
Cayo	30	Not limited		Not limited		Not limited	
FtD: Falfurrias	60	Not limited		Not limited		Somewhat limited Slope	0.12
Topo	30	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
GeB: Gertrudis	90	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
GhE: Greenhill	85	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding Slope	1.00 0.50
GmE: Greenhill	50	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding Slope	1.00 0.50
Mustang	41	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
GRE: Riverwash	55	Not rated		Not rated		Not rated	
Gullied land	35	Not rated		Not rated		Not rated	
IcA: Incell	90	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.93	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
LaC: Lalinda	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00

Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LpC: Lopeno	40	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.61	Very limited Flooding	1.00
Potrero	28	Very limited Flooding Depth to saturated zone	1.00 0.39	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.39
Arenisco	22	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
LsC: Lopeno	55	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.61	Very limited Flooding	1.00
Sauce1	40	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
LzC: Lopeno	56	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.61	Very limited Flooding	1.00
Sauz	35	Very limited Flooding Depth to saturated zone	1.00 0.98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.98
MaA: Madre	45	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
Malaquite	39	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
MnB: Madre	48	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00

Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Panam	43	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.89	Very limited Flooding	1.00
MoA: Montealto	90	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell Subsidence risk	1.00 1.00 1.00 0.02	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
MsA: Mustang	85	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
MtB: Mustang	49	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
Padre	42	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.89	Very limited Flooding	1.00
MuB: Mustang	50	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
Panam	40	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.89	Very limited Flooding	1.00
NaA: Narta	90	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
NeA: Novillo	88	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00

Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NfC: Nueces	90	Not limited		Not limited		Not limited	
NsC: Nueces	65	Not limited		Not limited		Not limited	
Sarita	25	Not limited		Not limited		Not limited	
OfA: Orelia	95	Somewhat limited Shrink-swell	0.78	Somewhat limited Shrink-swell	0.03	Somewhat limited Shrink-swell	0.78
PaA: Padrones	90	Not limited		Not limited		Not limited	
PbA: Palobia	90	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
PbB: Palobia	90	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
PeB: Palobia	90	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
PfA: Palobia	55	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
Colmena	35	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.01	Somewhat limited Shrink-swell	0.50
PfB: Palobia	55	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
Colmena	35	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.01	Somewhat limited Shrink-swell	0.50
PgA: Papagua	90	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
PIT: Pits, quarry	90	Not rated		Not rated		Not rated	
PnC: Point Isabel	90	Very limited Flooding Shrink-swell	1.00 1.00	Very limited Flooding Shrink-swell	1.00 1.00	Very limited Flooding Shrink-swell Slope	1.00 1.00 0.12

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Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PoB: Portalto	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
PrC: Potrero	45	Very limited Flooding Depth to saturated zone	1.00 0.39	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.39
Lopeno	33	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.61	Very limited Flooding	1.00
Noria	17	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
PtB: Premont	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.01	Somewhat limited Shrink-swell	0.50
QuA: Quiteria	90	Not limited		Not limited		Not limited	
RaB: Ramita	85	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 0.20	Very limited Depth to saturated zone Shrink-swell	1.00 0.50
RbB: Ramita	60	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 0.20	Very limited Depth to saturated zone Shrink-swell	1.00 0.50
Bordas	35	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.78	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.74	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.78
RoB: Rockport	90	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.35	Very limited Flooding	1.00
SA: Salt flats, very frequently flooded	90	Not rated		Not rated		Not rated	

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SF: Salt flats, ponded	90	Not rated		Not rated		Not rated	
SnC: Sarita	90	Not limited		Not limited		Not limited	
SrC: Sarita	70	Not limited		Not limited		Not limited	
Cayo	20	Not limited		Not limited		Not limited	
SsC: Sarita	75	Not limited		Not limited		Not limited	
Topo	20	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
StA: Satatton	90	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
SuA: Sauce1	95	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
SxB: Sauce1	65	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
Potrero	25	Very limited Flooding Depth to saturated zone	1.00 0.39	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.39
SyA: Sauz	90	Very limited Flooding Depth to saturated zone	1.00 0.98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.98
SzA: Sauz	50	Very limited Flooding Depth to saturated zone	1.00 0.98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.98

Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sauce1	40	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
TaA: Tatton	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
TBA: Tatton	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Beaches, washover fan	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
ToA: Topo	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
TsA: Topo	60	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Sauce1	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
TwA: Twinpalms	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
Yarborough	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98

Table 18.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without Basements		Dwellings with Basements		Small Commercial Buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VaA: Victine	97	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
VcA: Victoria	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
VcB: Victoria	95	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
W: Water	100	Not rated		Not rated		Not rated	
YaA: Yarborough	90	Very limited Flooding Depth to saturated zone	1.00 0.98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.98
YtC: Yturria	95	Not limited		Not limited		Not limited	

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Flooding	1.00
		Flooding	1.00	Unstable excavation walls	1.00	Sodium content	1.00
		Low strength	1.00	Flooding	0.80	Too clayey	1.00
		Depth to saturated zone	0.03	Too clayey	0.28	Salinity	1.00
						Depth to saturated zone	0.03
AcC: Arenisco	85	Somewhat limited Flooding	0.20	Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00
				Depth to saturated zone	0.61		
AnC: Arenisco	70	Somewhat limited Flooding	0.20	Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00
				Depth to saturated zone	0.61		
Topo	20	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Flooding	0.40	Unstable excavation walls	0.10	Depth to saturated zone	1.00
						Droughty	0.83
						Salinity	0.25
ArA: Arrada	90	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Salinity	1.00
				Unstable excavation walls	0.10	Sodium content	1.00
						Depth to saturated zone	1.00

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AsC: Arrada	55	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Salinity	1.00
				Unstable excavation walls	0.10	Sodium content	1.00
						Depth to saturated zone	1.00
Lalinda	35	Somewhat limited		Somewhat limited		Very limited	
		Low strength	0.22	Unstable excavation walls	0.10	Sodium content	1.00
		Flooding	0.20			Salinity	0.13
BA: Baffin	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Salinity	1.00
				Unstable excavation walls	0.10	Sodium content	1.00
						Depth to saturated zone	1.00
BbA: Banquete	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Unstable excavation walls	1.00	Sodium content	1.00
		Low strength	1.00	Too clayey	0.24	Too clayey	1.00
BdA: Barrada	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Flooding	1.00	Too clayey	0.72	Salinity	1.00
		Low strength	1.00	Unstable excavation walls	0.10	Sodium content	1.00
BE1: Beaches	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Salinity	1.00
				Unstable excavation walls	1.00	Sodium content	1.00
						Depth to saturated zone	1.00
						Droughty	0.34

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BE2: Beaches	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Salinity	1.00
				Unstable excavation walls	1.00	Sodium content	1.00
						Depth to saturated zone	1.00
						Droughty	0.34
BE3: Beaches	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Salinity	1.00
				Unstable excavation walls	1.00	Sodium content	1.00
						Depth to saturated zone	1.00
						Droughty	0.34
BE4: Beaches	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Salinity	1.00
				Unstable excavation walls	1.00	Sodium content	1.00
						Depth to saturated zone	1.00
						Droughty	0.34
BrA: Bordas	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.78	Unstable excavation walls	0.10		
		Low strength	0.22				
CaA: Calallen	85	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Unstable excavation walls	0.10		
		Shrink-swell	0.50				
CeA: Carreta	95	Very limited		Somewhat limited		Very limited	
		Shrink-swell	1.00	Too clayey	0.97	Sodium content	1.00
		Low strength	1.00	Unstable excavation walls	0.10	Salinity	1.00
						Droughty	0.25

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ChA: Cayo	90	Not limited		Somewhat limited Unstable excavation walls	0.10	Very limited Sodium content	1.00
CkA: Clareville	90	Very limited Shrink-swell Low strength	1.00 1.00	Somewhat limited Unstable excavation walls	0.10	Not limited	
CkB: Clareville	90	Very limited Shrink-swell Low strength	1.00 1.00	Somewhat limited Unstable excavation walls	0.10	Not limited	
CmA: Colmena	90	Somewhat limited Shrink-swell Low strength	0.50 0.22	Somewhat limited Unstable excavation walls	0.10	Not limited	
CmB: Colmena	90	Somewhat limited Shrink-swell Low strength	0.50 0.22	Somewhat limited Unstable excavation walls	0.10	Not limited	
CnA: Crane11	85	Very limited Shrink-swell Low strength	1.00 1.00	Somewhat limited Too clayey Unstable excavation walls	0.28 0.10	Very limited Sodium content	1.00
CnB: Crane11	90	Very limited Shrink-swell Low strength	1.00 1.00	Somewhat limited Too clayey Unstable excavation walls	0.28 0.10	Very limited Sodium content	1.00
CrA: Czar	90	Not limited		Somewhat limited Unstable excavation walls	0.10	Not limited	
CrB: Czar	90	Not limited		Somewhat limited Unstable excavation walls	0.10	Not limited	
CzA: Czar	90	Somewhat limited Low strength Shrink-swell	0.78 0.50	Somewhat limited Unstable excavation walls	0.10	Not limited	

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Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DaE: Daggerhill	86	Somewhat limited Flooding	0.40	Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00
DdE: Daggerhill	50	Somewhat limited Flooding	0.40	Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00
Mustang	41	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Unstable excavation walls Flooding	1.00	Droughty	1.00
					0.60	Flooding	0.60
DeE: Daggerhill	45	Somewhat limited Flooding	0.40	Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00
Satatton	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Flooding	1.00
		Flooding	1.00	Unstable excavation walls Flooding	1.00	Salinity	1.00
					0.80	Sodium content Depth to saturated zone	1.00
						Droughty	1.00
DfB: Delfina	90	Somewhat limited Low strength	0.78	Somewhat limited Unstable excavation walls	0.10	Not limited	
DnB: Delfina	95	Somewhat limited Low strength	0.78	Somewhat limited Unstable excavation walls	0.10	Not limited	
		Shrink-swell	0.50				
DrA: Dietrich	90	Very limited Low strength	1.00	Very limited Depth to saturated zone	1.00	Very limited Sodium content	1.00
		Shrink-swell	0.50	Unstable excavation walls	0.10	Depth to saturated zone	0.48
		Depth to saturated zone	0.48				
		Flooding	0.20				

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DsB: Dietrich	90	Somewhat limited Depth to saturated zone	0.48	Very limited Depth to saturated zone	1.00	Very limited Sodium content	1.00
		Flooding	0.20	Unstable excavation walls	1.00	Depth to saturated zone Droughty	0.48 0.07
DTE: Dune land	95	Very limited Flooding	1.00	Very limited Unstable excavation walls Flooding	1.00 0.60	Very limited Droughty Flooding	1.00 0.60
DU: Dune land	95	Very limited Flooding	1.00	Very limited Unstable excavation walls Flooding	1.00 0.60	Very limited Droughty Flooding	1.00 0.60
DXC: Dune land	55	Very limited Flooding	1.00	Very limited Unstable excavation walls Flooding	1.00 0.60	Very limited Droughty Flooding	1.00 0.60
Satatton	42	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Unstable excavation walls Flooding	1.00 1.00 0.80	Very limited Flooding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 1.00
EdA: Edroy	95	Very limited Ponding Depth to saturated zone Shrink-swell Low strength	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Unstable excavation walls Too clayey	1.00 1.00 1.00 0.03	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 1.00
EsA: Estella	80	Somewhat limited Depth to saturated zone	0.19	Very limited Depth to saturated zone Unstable excavation walls	1.00 1.00	Somewhat limited Droughty Depth to saturated zone	0.69 0.19
FaC: Falfurrias	90	Not limited		Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00

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Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FaE: Falfurrias	90	Somewhat limited Slope	0.16	Very limited Unstable excavation walls Slope	1.00 0.16	Very limited Droughty Slope	1.00 0.16
FmC: Falfurrias	45	Not limited		Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00
Atras	30	Not limited		Very limited Unstable excavation walls	1.00	Somewhat limited Droughty	0.69
Medanito	20	Not limited		Very limited Unstable excavation walls	1.00	Very limited Sodium content Droughty	1.00 0.26
FoD: Falfurrias	60	Not limited		Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00
Cayo	30	Not limited		Somewhat limited Unstable excavation walls	0.10	Very limited Sodium content	1.00
FtD: Falfurrias	60	Not limited		Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00
Topo	30	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Unstable excavation walls	1.00 1.00 0.10	Very limited Ponding Sodium content Depth to saturated zone Droughty Salinity	1.00 1.00 1.00 0.83 0.25
GeB: Gertrudis	90	Somewhat limited Shrink-swell Low strength	0.50 0.22	Somewhat limited Unstable excavation walls	0.10	Not limited	
GhE: Greenhill	85	Somewhat limited Flooding	0.40	Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00
GmE: Greenhill	50	Somewhat limited Flooding	0.40	Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00

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Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mustang	41	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Unstable excavation walls	1.00	Droughty	1.00
				Flooding	0.60	Flooding	0.60
GRE: Riverwash	55	Not rated		Not rated		Not rated	
Gullied land	35	Not rated		Not rated		Not rated	
IcA: Incell	90	Very limited		Very limited		Very limited	
Ponding		1.00	Ponding	1.00	Ponding	1.00	
Depth to saturated zone		1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	
Shrink-swell		1.00	Unstable excavation walls	0.10	Too clayey	1.00	
		Low strength	1.00	Too clayey	0.03	Sodium content	1.00
LaC: Lalinda	90	Somewhat limited		Somewhat limited		Very limited	
Low strength		0.22	Unstable excavation walls	0.10	Sodium content	1.00	
		Flooding	0.20			Salinity	0.13
LpC: Lopeno	40	Somewhat limited		Very limited		Not limited	
Flooding		0.20	Unstable excavation walls	1.00			
				Depth to saturated zone	0.61		
Potrero	28	Somewhat limited		Very limited		Somewhat limited	
Flooding		0.20	Depth to saturated zone	1.00	Depth to saturated zone	0.19	
		Depth to saturated zone	0.19	Unstable excavation walls	1.00		
Arenisco	22	Somewhat limited		Very limited		Very limited	
Flooding	0.20			Unstable excavation walls	1.00	Droughty	1.00
LsC: Lopeno	55	Somewhat limited		Very limited		Not limited	
Flooding		0.20	Unstable excavation walls	1.00			
				Depth to saturated zone	0.61		

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping							
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value						
Sauce1	40	Very limited		Very limited		Very limited							
		Ponding	1.00	Ponding	1.00	Ponding	1.00						
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Salinity	1.00						
		Flooding	0.40	Unstable excavation walls	0.10	Depth to saturated zone	1.00						
LzC: Lopeno	56	Somewhat limited Flooding	0.20	Very limited		Not limited							
				Unstable excavation walls	1.00								
				Depth to saturated zone	0.61								
Sauz	35	Somewhat limited	0.75	Very limited		Very limited							
				Depth to saturated zone	0.75		Depth to saturated zone	1.00	Sodium content	1.00			
				Flooding	0.40		Unstable excavation walls	0.10	Depth to saturated zone	0.75			
MaA: Madre	45	Very limited	1.00	Very limited	1.00	Very limited	1.00						
								Ponding	1.00	Ponding	1.00	Ponding	1.00
								Depth to saturated zone	1.00	Depth to saturated zone	1.00	Sodium content	1.00
								Flooding	1.00	Unstable excavation walls	1.00	Depth to saturated zone	1.00
Malaquite	39	Very limited	1.00	Very limited	1.00	Very limited	1.00						
								Ponding	1.00	Ponding	1.00	Ponding	1.00
								Depth to saturated zone	1.00	Depth to saturated zone	1.00	Salinity	1.00
								Flooding	1.00	Unstable excavation walls	1.00	Sodium content	1.00
MnB: Madre	48	Very limited	1.00	Very limited	1.00	Very limited	1.00						
								Ponding	1.00	Ponding	1.00	Ponding	1.00
								Depth to saturated zone	1.00	Depth to saturated zone	1.00	Sodium content	1.00
								Flooding	1.00	Unstable excavation walls	1.00	Depth to saturated zone	1.00
Panam	43	Very limited	1.00	Very limited	1.00	Somewhat limited	0.60						
								Flooding	1.00	Unstable excavation walls	1.00	Flooding	0.60
										Depth to saturated zone	0.89	Droughty	0.34
										Flooding	0.60		

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MoA: Montealto	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Unstable excavation walls	1.00	Too clayey	1.00
		Low strength	1.00	Too clayey	0.72	Sodium content	1.00
					Salinity	0.50	
MsA: Mustang	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Unstable excavation walls	1.00	Droughty	1.00
				Flooding	0.60	Flooding	0.60
MtB: Mustang	49	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Unstable excavation walls	1.00	Droughty	1.00
				Flooding	0.60	Flooding	0.60
Padre	42	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Unstable excavation walls	1.00	Flooding	0.60
				Depth to saturated zone	0.89	Droughty	0.34
				Flooding	0.60		
MuB: Mustang	50	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Unstable excavation walls	1.00	Droughty	1.00
				Flooding	0.60	Flooding	0.60
Panam	40	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Unstable excavation walls	1.00	Flooding	0.60
				Depth to saturated zone	0.89	Droughty	0.34
				Flooding	0.60		

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NaA: Narta	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Sodium content	1.00
		Shrink-swell	1.00	Unstable excavation walls	0.10	Depth to saturated zone	1.00
		Low strength Flooding	1.00 0.40			Droughty	1.00
NeA: Novillo	88	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Unstable excavation walls	1.00	Droughty	0.99
NfC: Nueces	90	Not limited		Very limited Unstable excavation walls	1.00	Somewhat limited Droughty	0.07
NsC: Nueces	65	Not limited		Very limited Unstable excavation walls	1.00	Somewhat limited Droughty	0.07
Sarita	25	Not limited		Very limited Unstable excavation walls	1.00	Somewhat limited Droughty	0.69
OfA: Orelia	95	Very limited Low strength	1.00	Somewhat limited Unstable excavation walls	0.10	Very limited Sodium content	1.00
		Shrink-swell	0.78				
PaA: Padrones	90	Not limited		Very limited Unstable excavation walls	1.00	Very limited Sodium content	1.00
						Droughty	0.32
PbA: Palobia	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Unstable excavation walls	0.10	Very limited Sodium content	1.00
							Droughty
PbB: Palobia	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Unstable excavation walls	0.10	Very limited Sodium content	1.00
							Droughty

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Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PeB: Palobia	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Unstable excavation walls	0.10	Very limited Sodium content	1.00
						Droughty	0.46
PfA: Palobia	55	Somewhat limited Shrink-swell	0.50	Somewhat limited Unstable excavation walls	0.10	Very limited Sodium content	1.00
						Droughty	0.46
Colmena	35	Somewhat limited Shrink-swell	0.50	Somewhat limited Unstable excavation walls	0.10	Not limited	
		Low strength	0.22				
PfB: Palobia	55	Somewhat limited Shrink-swell	0.50	Somewhat limited Unstable excavation walls	0.10	Very limited Sodium content	1.00
						Droughty	0.46
Colmena	35	Somewhat limited Shrink-swell	0.50	Somewhat limited Unstable excavation walls	0.10	Not limited	
		Low strength	0.22				
PgA: Papagua	90	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Unstable excavation walls	0.10		
		Low strength	1.00	Too clayey	0.03		
PIT: Pits, quarry	90	Not rated		Not rated		Not rated	
PnC: Point Isabel	90	Very limited Shrink-swell	1.00	Somewhat limited Too clayey	0.12	Very limited Sodium content	1.00
		Low strength	1.00	Unstable excavation walls	0.10	Salinity	0.50
		Flooding	0.40			Droughty	0.25
PoB: Portalto	90	Somewhat limited Flooding	0.40	Very limited Unstable excavation walls	1.00	Somewhat limited Droughty	0.69
PrC: Potrero	45	Somewhat limited Flooding	0.20	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Unstable excavation walls	1.00		

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Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Lopeno	33	Somewhat limited Flooding	0.20	Very limited Unstable excavation walls Depth to saturated zone	1.00 0.61	Not limited	
Noria	17	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Unstable excavation walls	1.00 1.00 1.00	Very limited Ponding Sodium content Depth to saturated zone Droughty Salinity	1.00 1.00 1.00 1.00 1.00
PtB: Premont	90	Somewhat limited Low strength Shrink-swell	0.78 0.50	Somewhat limited Unstable excavation walls	0.10	Not limited	
QuA: Quiteria	90	Not limited		Somewhat limited Unstable excavation walls	0.10	Very limited Sodium content Droughty	1.00 0.06
RaB: Ramita	85	Very limited Depth to saturated zone Low strength Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Unstable excavation walls	1.00 0.10	Very limited Sodium content Depth to saturated zone Droughty	1.00 1.00 0.02
RbB: Ramita	60	Very limited Depth to saturated zone Low strength Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Unstable excavation walls	1.00 0.10	Very limited Sodium content Depth to saturated zone Droughty	1.00 1.00 0.02
Bordas	35	Very limited Ponding Depth to saturated zone Shrink-swell Low strength	1.00 1.00 0.78 0.22	Very limited Ponding Depth to saturated zone Unstable excavation walls	1.00 1.00 0.10	Very limited Ponding Depth to saturated zone	1.00 1.00
RoB: Rockport	90	Somewhat limited Flooding	0.40	Very limited Unstable excavation walls Depth to saturated zone	1.00 0.35	Somewhat limited Droughty	0.34

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SA: Salt flats, very frequently flooded	90	Not rated		Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated		Not rated	
SnC: Sarita	90	Not limited		Very limited Unstable excavation walls	1.00	Somewhat limited Droughty	0.69
SrC: Sarita	70	Not limited		Very limited Unstable excavation walls	1.00	Somewhat limited Droughty	0.69
Cayo	20	Not limited		Somewhat limited Unstable excavation walls	0.10	Very limited Sodium content	1.00
SsC: Sarita	75	Not limited		Very limited Unstable excavation walls	1.00	Somewhat limited Droughty	0.69
Topo	20	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Unstable excavation walls	1.00 1.00 0.10	Very limited Ponding Sodium content Depth to saturated zone	1.00 1.00 1.00
StA: Satatton	90	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Unstable excavation walls Flooding	1.00 1.00 1.00 0.80	Very limited Flooding Salinity Sodium content Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 1.00
SuA: Sauce1	95	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Unstable excavation walls	1.00 1.00 1.00 0.10	Very limited Ponding Salinity Depth to saturated zone Droughty	1.00 1.00 1.00 1.00 1.00

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SxB: Sauce1	65	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Salinity	1.00
		Flooding	0.40	Unstable excavation walls	0.10	Depth to saturated zone	1.00
Potrero	25	Flooding	0.20	Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Unstable excavation walls	1.00		
SyA: Sauz	90	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.75	Depth to saturated zone	1.00	Sodium content	1.00
		Flooding	0.40	Unstable excavation walls	0.10	Depth to saturated zone	0.75
SzA: Sauz	50	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.75	Depth to saturated zone	1.00	Sodium content	1.00
		Flooding	0.40	Unstable excavation walls	0.10	Depth to saturated zone	0.75
Sauce1	40	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Salinity	1.00
		Flooding	0.40	Unstable excavation walls	0.10	Depth to saturated zone	1.00
TaA: Tatton	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Salinity	1.00
				Unstable excavation walls	1.00	Sodium content	1.00
						Depth to saturated zone	1.00
						Droughty	0.91

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TBA: Tatton	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Salinity	1.00
				Unstable excavation walls	1.00	Sodium content	1.00
						Depth to saturated zone	1.00
						Droughty	0.87
Beaches, washover fan	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Salinity	1.00
				Unstable excavation walls	1.00	Sodium content	1.00
						Depth to saturated zone	1.00
						Droughty	0.69
ToA: Topo	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Flooding	0.40	Unstable excavation walls	0.10	Depth to saturated zone	1.00
						Droughty	0.83
						Salinity	0.25
TsA: Topo	60	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Sodium content	1.00
		Flooding	0.40	Unstable excavation walls	0.10	Depth to saturated zone	1.00
						Droughty	0.83
						Salinity	0.25
Sauce1	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Salinity	1.00
		Flooding	0.40	Unstable excavation walls	0.10	Depth to saturated zone	1.00
						Droughty	1.00

Table 19.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TwA: Twinpalms	55	Very limited Flooding	1.00	Very limited Unstable excavation walls	1.00	Very limited Droughty	1.00
				Depth to saturated zone Flooding	0.72 0.60	Flooding	0.60
Yarborough	40	Very limited Flooding	1.00	Very limited Depth to saturated zone Flooding	1.00 0.80	Very limited Flooding	1.00
		Depth to saturated zone	0.75	Unstable excavation walls	0.10	Salinity	1.00
						Sodium content	1.00
						Droughty Depth to saturated zone	1.00 0.75
VaA: Victine	97	Very limited Shrink-swell	1.00	Very limited Unstable excavation walls	1.00	Very limited Sodium content	1.00
		Low strength	1.00	Too clayey	0.50		
VcA: Victoria	85	Very limited Shrink-swell	1.00	Very limited Unstable excavation walls	1.00	Very limited Sodium content	1.00
		Low strength	1.00	Too clayey	0.72	Too clayey	1.00
VcB: Victoria	95	Very limited Shrink-swell	1.00	Very limited Unstable excavation walls	1.00	Very limited Sodium content	1.00
		Low strength	1.00	Too clayey	0.72	Too clayey	1.00
W: Water	100	Not rated		Not rated		Not rated	
YaA: Yarborough	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	0.75	Depth to saturated zone Unstable excavation walls	1.00 0.10	Salinity	1.00
						Sodium content	1.00
						Droughty Depth to saturated zone	1.00 0.75
YtC: Yturria	95	Not limited		Somewhat limited Unstable excavation walls	0.10	Not limited	

Table 20.--Sewage Disposal

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
AcC: Arenisco	85	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	0.71
		Seepage, bottom layer	1.00	Flooding	0.20
		Flooding	0.20	Slope	0.08
AnC: Arenisco	70	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	0.71
		Seepage, bottom layer	1.00	Flooding	0.20
		Flooding	0.20	Slope	0.08
Topo	20	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40
ArA: Arrada	90	Very limited Flooding	1.00	Very limited Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AsC: Arrada	55	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
Lalinda	35	Very limited		Somewhat limited	
		Slow water movement	1.00	Flooding	0.20
		Flooding	0.20	Slope	0.08
BA: Baffin	95	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
BbA: Banquete	90	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Seepage, bottom layer	1.00		
BdA: Barrada	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
BE1: Beaches	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		
BE2: Beaches	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
BE3: Beaches	90	Very limited Flooding Depth to saturated zone Seepage, bottom layer Filtering capacity	1.00 1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
BE4: Beaches	90	Very limited Flooding Depth to saturated zone Seepage, bottom layer Filtering capacity	1.00 1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
BrA: Bordas	95	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
CaA: Calallen	85	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
CeA: Carreta	95	Very limited Slow water movement	1.00	Not limited	
ChA: Cayo	90	Very limited Seepage, bottom layer	1.00	Very limited Seepage	1.00
CkA: Clareville	90	Very limited Slow water movement	1.00	Somewhat limited Seepage	0.50
CkB: Clareville	90	Very limited Slow water movement	1.00	Somewhat limited Seepage	0.50
CmA: Colmena	90	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
CmB: Colmena	90	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
CnA: Crane11	85	Very limited Slow water movement	1.00	Not limited	
CnB: Crane11	90	Very limited Slow water movement	1.00	Not limited	
CrA: Czar	90	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
CrB: Czar	90	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
CzA: Czar	90	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
DaE: Daggerhill	86	Very limited Seepage, bottom layer Filtering capacity Flooding	1.00 1.00 0.40	Very limited Seepage Slope Flooding	1.00 0.92 0.40
DdE: Daggerhill	50	Very limited Seepage, bottom layer Filtering capacity Flooding	1.00 1.00 0.40	Very limited Seepage Slope Flooding	1.00 0.92 0.40
Mustang	41	Very limited Flooding Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
DeE: Daggerhill	45	Very limited Seepage, bottom layer Filtering capacity Flooding	1.00 1.00 0.40	Very limited Seepage Slope Flooding	1.00 0.68 0.40
Sataton	40	Very limited Flooding Depth to saturated zone Slow water movement	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
DfB: Delfina	90	Very limited Slow water movement	1.00	Very limited Seepage	1.00
DnB: Delfina	95	Very limited Slow water movement	1.00	Very limited Seepage	1.00
DrA: Dietrich	90	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.20	Somewhat limited Depth to saturated zone Flooding	0.94 0.20
DsB: Dietrich	90	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.20	Very limited Seepage Depth to saturated zone Flooding	1.00 0.94 0.20
DTE: Dune land	95	Very limited Flooding Seepage, bottom layer Filtering capacity	1.00 1.00 1.00	Very limited Flooding Seepage Slope	1.00 1.00 0.08
DU: Dune land	95	Very limited Flooding Seepage, bottom layer Filtering capacity	1.00 1.00 1.00	Very limited Flooding Seepage Slope	1.00 1.00 1.00
DXC: Dune land	55	Very limited Flooding Seepage, bottom layer Filtering capacity	1.00 1.00 1.00	Very limited Flooding Seepage Slope	1.00 1.00 0.08
Satatton	42	Very limited Flooding Depth to saturated zone Slow water movement	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
EdA: Edroy	95	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
EsA: Estella	80	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
FaC: Falfurrias	90	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.32
FaE: Falfurrias	90	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.16		
FmC: Falfurrias	45	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.08
Atras	30	Very limited Seepage, bottom layer	1.00	Very limited Seepage	1.00
Medanito	20	Very limited Seepage, bottom layer	1.00	Very limited Seepage	1.00
FoD: Falfurrias	60	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.02
Cayo	30	Very limited Seepage, bottom layer	1.00	Very limited Seepage	1.00
FtD: Falfurrias	60	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.68
Topo	30	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
GeB: Gertrudis	90	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
ChE: Greenhill	85	Very limited Seepage, bottom layer Filtering capacity Flooding	1.00 1.00 0.40	Very limited Seepage Slope Flooding	1.00 0.92 0.40
GmE: Greenhill	50	Very limited Seepage, bottom layer Filtering capacity Flooding	1.00 1.00 0.40	Very limited Seepage Slope Flooding	1.00 0.92 0.40
Mustang	41	Very limited Flooding Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00 1.00	Very limited Ponding Flooding Seepage Depth to saturated zone	1.00 1.00 1.00 1.00
GRE: Riverwash	55	Not rated		Not rated	
Gullied land	35	Not rated		Not rated	
IcA: Incell	90	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
LaC: Lalinda	90	Very limited Slow water movement Flooding	1.00 0.20	Somewhat limited Flooding Slope	0.20 0.08
LpC: Lopeno	40	Very limited Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00 0.20	Very limited Seepage Depth to saturated zone Flooding Slope	1.00 0.71 0.20 0.08

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Potrero	28	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Flooding	0.20	Flooding	0.20
Arenisco	22	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Flooding	0.20
		Flooding	0.20	Slope	0.08
LsC: Lopeno	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.71
		Flooding	0.20	Flooding	0.20
				Slope	0.08
Sauce1	40	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
LzC: Lopeno	56	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.71
		Flooding	0.20	Flooding	0.20
				Slope	0.08
Sauz	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	0.40
		Flooding	0.40		
MaA: Madre	45	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Malaquite	39	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
MnB: Madre	48	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
Panam	43	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		
MoA: Montealto	90	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
MsA: Mustang	85	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
MtB: Mustang	49	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
Padre	42	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
MuB: Mustang	50	Very limited Flooding Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
Panam	40	Very limited Flooding Depth to saturated zone Seepage, bottom layer Filtering capacity	1.00 1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
NaA: Narta	90	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40
NeA: Novillo	88	Very limited Ponding Depth to saturated zone Slow water movement Flooding	1.00 1.00 1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.40
NfC: Nueces	90	Very limited Slow water movement	1.00	Very limited Seepage	1.00
NsC: Nueces	65	Very limited Slow water movement	1.00	Very limited Seepage	1.00
Sarita	25	Very limited Seepage, bottom layer	1.00	Very limited Seepage	1.00
OfA: Orelia	95	Very limited Slow water movement	1.00	Not limited	
PaA: Padrones	90	Very limited Slow water movement	1.00	Very limited Seepage	1.00
PbA: Palobia	90	Very limited Slow water movement	1.00	Very limited Seepage	1.00

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
PbB: Palobia	90	Very limited Slow water movement	1.00	Very limited Seepage	1.00
PeB: Palobia	90	Very limited Slow water movement	1.00	Very limited Seepage	1.00
PfA: Palobia	55	Very limited Slow water movement	1.00	Very limited Seepage	1.00
Colmena	35	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
PfB: Palobia	55	Very limited Slow water movement	1.00	Very limited Seepage	1.00
Colmena	35	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
PgA: Papagua	90	Very limited Ponding Depth to saturated zone Slow water movement	1.00 1.00 1.00	Very limited Ponding Seepage Depth to saturated zone	1.00 1.00 1.00
PIT: Pits, quarry	90	Not rated		Not rated	
PnC: Point Isabel	90	Very limited Slow water movement Flooding	1.00 0.40	Somewhat limited Slope Flooding	0.68 0.40
PoB: Portalto	90	Somewhat limited Slow water movement Flooding	0.50 0.40	Very limited Seepage Flooding	1.00 0.40
PrC: Potrero	45	Very limited Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00 0.20	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.20

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Lopeno	33	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.71
		Flooding	0.20	Flooding Slope	0.08
Noria	17	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Flooding	0.40
PtB: Premont	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Seepage	0.50
QuA: Quiteria	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.50
RaB: Ramita	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
RbB: Ramita	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
Bordas	35	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
RoB: Rockport	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Flooding	0.40
		Depth to saturated zone	0.84	Depth to saturated zone	0.17
		Flooding	0.40		

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
SA: Salt flats, very frequently flooded	90	Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated	
SnC: Sarita	90	Somewhat limited Slow water movement	0.50	Very limited Seepage	1.00
SrC: Sarita	70	Somewhat limited Slow water movement	0.50	Very limited Seepage Slope	1.00 0.08
Cayo	20	Very limited Seepage, bottom layer	1.00	Very limited Seepage	1.00
SsC: Sarita	75	Somewhat limited Slow water movement	0.50	Very limited Seepage Slope	1.00 0.08
Topo	20	Very limited Ponding Depth to saturated zone Seepage, bottom layer	1.00 1.00 1.00	Very limited Ponding Seepage Depth to saturated zone	1.00 1.00 1.00
StA: Satatton	90	Very limited Flooding Depth to saturated zone Slow water movement	1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
SuA: Sauce1	95	Very limited Ponding Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.50 0.40	Very limited Ponding Depth to saturated zone Seepage Flooding	1.00 1.00 0.50 0.40
SxB: Sauce1	65	Very limited Ponding Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.50 0.40	Very limited Ponding Depth to saturated zone Seepage Flooding	1.00 1.00 0.50 0.40

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Potrero	25	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Flooding	0.20	Flooding	0.20
SyA: Sauz	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	0.40
		Flooding	0.40		
SzA: Sauz	50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	0.40
		Flooding	0.40		
Sauce1	40	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
TaA: Tatton	95	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
TBA: Tatton	55	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
Beaches, washover fan	35	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
ToA: Topo	90	Very limited Ponding Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00 1.00 0.40	Very limited Ponding Seepage Depth to saturated zone Flooding	1.00 1.00 1.00 0.40
TsA: Topo	60	Very limited Ponding Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00 1.00 0.40	Very limited Ponding Seepage Depth to saturated zone Flooding	1.00 1.00 1.00 0.40
Sauce1	30	Very limited Ponding Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.50 0.40	Very limited Ponding Depth to saturated zone Seepage Flooding	1.00 1.00 0.50 0.40
TwA: Twinpalms	55	Very limited Flooding Depth to saturated zone Slow water movement	1.00 1.00 0.32	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.90
Yarborough	40	Very limited Flooding Depth to saturated zone Seepage, bottom layer	1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
VaA: Victine	97	Very limited Slow water movement	1.00	Not limited	
VcA: Victoria	85	Very limited Slow water movement	1.00	Not limited	
VcB: Victoria	95	Very limited Slow water movement	1.00	Not limited	
W: Water	100	Not rated		Not rated	

Table 20.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic Tank Absorption Fields		Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
YaA: Yarborough	90	Very limited Flooding Depth to saturated zone Seepage, bottom layer	1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
YtC: Yturria	95	Very limited Seepage, bottom layer	1.00	Very limited Seepage Slope	1.00 0.32

Table 21.--Landfills

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Very limited Flooding Excess sodium	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Sodium content Hard to compact	1.00 1.00
		Depth to saturated zone Too clayey	1.00 1.00			Too clayey Depth to saturated zone	1.00 0.68
AcC: Arenisco	85	Very limited Seepage, bottom layer Too sandy	1.00 1.00	Very limited Seepage Depth to saturated zone	1.00 1.00	Very limited Seepage Too sandy	1.00 1.00
		Depth to saturated zone Flooding	1.00 0.20	Flooding	0.20		
AnC: Arenisco	70	Very limited Seepage, bottom layer Too sandy	1.00 1.00	Very limited Seepage Depth to saturated zone	1.00 1.00	Very limited Seepage Too sandy	1.00 1.00
		Depth to saturated zone Flooding	1.00 0.20	Flooding	0.20		
Topo	20	Very limited Ponding Excess sodium	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
		Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00	Seepage Flooding	1.00 0.40	Sodium content Seepage	1.00 0.50
ArA: Arrada	90	Very limited Ponding Flooding	1.00 1.00	Very limited Flooding Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
		Excess sodium Excess salt Depth to saturated zone	1.00 1.00	Depth to saturated zone	1.00	Salinity Sodium content	1.00 1.00

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AsC: Arrada	55	Very limited		Very limited		Very limited	
		Ponding	1.00	Flooding	1.00	Ponding	1.00
		Flooding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Excess sodium	1.00	Depth to saturated zone	1.00	Salinity	1.00
		Excess salt	1.00			Sodium content	1.00
Lalinda	35	Very limited		Somewhat limited		Very limited	
		Excess sodium	1.00	Flooding	0.20	Sodium content	1.00
		Excess salt	1.00				
		Flooding	0.20				
BA: Baffin	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Excess sodium	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Excess salt	1.00			Salinity	1.00
		Depth to saturated zone	1.00			Sodium content	1.00
BbA: Banquete	90	Very limited		Not limited		Very limited	
		Seepage, bottom layer	1.00			Seepage	1.00
		Excess sodium	1.00			Sodium content	1.00
		Too clayey	1.00			Hard to compact	1.00
						Too clayey	1.00
BdA: Barrada	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Flooding	1.00	Ponding	1.00
		Flooding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Depth to saturated zone	1.00	Salinity	1.00
		Excess sodium	1.00			Sodium content	1.00
BE1: Beaches	90	Very limited		Not rated		Very limited	
		Flooding	1.00			Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
		Too sandy	1.00			Too sandy	1.00
		Excess sodium	1.00			Sodium content	1.00
		Depth to saturated zone	1.00				

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BE2: Beaches	90	Very limited Flooding	1.00	Not rated		Very limited Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
		Excess sodium	1.00			Sodium content	1.00
		Depth to saturated zone	1.00				
BE3: Beaches	90	Very limited Flooding	1.00	Not rated		Very limited Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
		Too sandy	1.00			Too sandy	1.00
		Excess sodium	1.00			Sodium content	1.00
		Depth to saturated zone	1.00				
BE4: Beaches	90	Very limited Flooding	1.00	Not rated		Very limited Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
		Excess sodium	1.00			Sodium content	1.00
		Depth to saturated zone	1.00				
BrA: Bordas	95	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CaA: Calallen	85	Not limited		Not limited		Not limited	
CeA: Carreta	95	Very limited Excess sodium	1.00	Not limited		Very limited Sodium content	1.00
		Excess salt	1.00			Hard to compact	1.00
		Too clayey	0.96			Too clayey	0.96
ChA: Cayo	90	Very limited Excess sodium	1.00	Very limited Seepage	1.00	Very limited Sodium content	1.00
		Seepage, bottom layer	1.00			Salinity	1.00
		Excess salt	1.00			Seepage	0.50
CkA: Clareville	90	Somewhat limited Too clayey	0.47	Not limited		Somewhat limited Too clayey	0.47

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CkB: Clareville	90	Somewhat limited Too clayey	0.47	Not limited		Somewhat limited Too clayey	0.47
CmA: Colmena	90	Not limited		Not limited		Not limited	
CmB: Colmena	90	Not limited		Not limited		Not limited	
CnA: Crane11	85	Very limited Excess sodium Too clayey	1.00 0.69	Not limited		Very limited Hard to compact Sodium content Too clayey	1.00 1.00 0.69
CnB: Crane11	90	Very limited Excess sodium Too clayey	1.00 0.92	Not limited		Very limited Hard to compact Sodium content Too clayey	1.00 1.00 0.92
CrA: Czar	90	Not limited		Not limited		Not limited	
CrB: Czar	90	Not limited		Not limited		Not limited	
CzA: Czar	90	Not limited		Not limited		Not limited	
DaE: Daggerhill	86	Very limited Seepage, bottom layer Too sandy Flooding	1.00 1.00 0.40	Very limited Seepage Flooding	1.00 0.40	Very limited Seepage Too sandy	1.00 1.00
DdE: Daggerhill	50	Very limited Seepage, bottom layer Too sandy Flooding	1.00 1.00 0.40	Very limited Seepage Flooding	1.00 0.40	Very limited Seepage Too sandy	1.00 1.00
Mustang	41	Very limited Ponding Flooding Too sandy Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Flooding Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too sandy	1.00 1.00 1.00

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DeE: Daggerhill	45	Very limited Seepage, bottom layer	1.00	Very limited Seepage	1.00	Very limited Seepage	1.00
		Too sandy Flooding	1.00 0.40	Flooding	0.40	Too sandy	1.00
Satatton	40	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Excess sodium	1.00			Salinity	1.00
		Excess salt	1.00			Sodium content	1.00
		Depth to saturated zone	1.00				
DfB: Delfina	90	Not limited		Not limited		Not limited	
DnB: Delfina	95	Not limited		Not limited		Not limited	
DrA: Dietrich	90	Very limited Excess sodium	1.00	Somewhat limited Depth to saturated zone	0.94	Very limited Sodium content	1.00
		Depth to saturated zone	1.00	Flooding	0.20	Depth to saturated zone	0.96
		Flooding	0.20			Too clayey	0.01
		Too clayey	0.01				
DsB: Dietrich	90	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00	Very limited Sodium content	1.00
		Excess sodium	1.00	Depth to saturated zone	0.94	Depth to saturated zone	0.96
		Flooding	0.20	Flooding	0.20		
DTE: Dune land	95	Very limited Flooding	1.00	Not rated		Very limited Seepage	1.00
		Seepage, bottom layer	1.00			Too sandy	1.00
		Too sandy	1.00				
DU: Dune land	95	Very limited Flooding	1.00	Not rated		Very limited Seepage	1.00
		Seepage, bottom layer	1.00			Too sandy	1.00
		Too sandy	1.00				

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DXC: Dune land	55	Very limited Flooding Seepage, bottom layer Too sandy	1.00 1.00 1.00	Not rated		Very limited Seepage Too sandy	1.00 1.00
Satatton	42	Very limited Flooding Too sandy Excess sodium Excess salt Depth to saturated zone	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Too sandy Salinity Sodium content	1.00 1.00 1.00 1.00
EdA: Edroy	95	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 0.91	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Hard to compact Too clayey	1.00 1.00 1.00 0.91
EsA: Estella	80	Very limited Too sandy Depth to saturated zone Seepage, bottom layer	1.00 1.00 1.00	Very limited Seepage Depth to saturated zone	1.00 1.00	Very limited Seepage Too sandy Depth to saturated zone	1.00 1.00 0.86
FaC: Falfurrias	90	Very limited Seepage, bottom layer Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too sandy	1.00 1.00
FaE: Falfurrias	90	Very limited Seepage, bottom layer Too sandy Slope	1.00 1.00 0.16	Very limited Seepage Slope	1.00 0.16	Very limited Seepage Too sandy Slope	1.00 1.00 0.16
FmC: Falfurrias	45	Very limited Seepage, bottom layer Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too sandy	1.00 1.00
Atras	30	Very limited Too sandy Seepage, bottom layer	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too sandy	1.00 1.00

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Medanito	20	Very limited Seepage, bottom layer Excess sodium	1.00 1.00	Very limited Seepage	1.00	Very limited Sodium content Seepage	1.00 0.50
FoD: Falfurrias	60	Very limited Seepage, bottom layer Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too sandy	1.00 1.00
Cayo	30	Very limited Excess sodium Seepage, bottom layer Excess salt	1.00 1.00 1.00	Very limited Seepage	1.00	Very limited Sodium content Salinity Seepage	1.00 1.00 0.50
FtD: Falfurrias	60	Very limited Seepage, bottom layer Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too sandy	1.00 1.00
Topo	30	Very limited Ponding Excess sodium Depth to saturated zone Seepage, bottom layer	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Sodium content Seepage	1.00 1.00 1.00 0.50
GeB: Gertrudis	90	Not limited		Not limited		Not limited	
GhE: Greenhill	85	Very limited Seepage, bottom layer Too sandy Flooding	1.00 1.00 0.40	Very limited Seepage Flooding	1.00 0.40	Very limited Seepage Too sandy	1.00 1.00
GmE: Greenhill	50	Very limited Seepage, bottom layer Too sandy Flooding	1.00 1.00 0.40	Very limited Seepage Flooding	1.00 0.40	Very limited Seepage Too sandy	1.00 1.00
Mustang	41	Very limited Ponding Flooding Too sandy Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Flooding Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too sandy	1.00 1.00 1.00

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GRE: Riverwash	55	Not rated		Not rated		Not rated	
Gullied land	35	Not rated		Not rated		Not rated	
IcA: Incell	90	Very limited Ponding Depth to saturated zone Excess sodium Too clayey	1.00 1.00 1.00 0.44	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Sodium content Too clayey	1.00 1.00 1.00 0.44
LaC: Lalinda	90	Very limited Excess sodium Excess salt Flooding	1.00 1.00 0.20	Somewhat limited Flooding	0.20	Very limited Sodium content	1.00
LpC: Lopeno	40	Very limited Too sandy Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00 1.00 0.20	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.20	Very limited Seepage Too sandy	1.00 1.00
Potrero	28	Very limited Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00 0.20	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.20	Somewhat limited Depth to saturated zone Seepage	0.86 0.50
Arenisco	22	Very limited Seepage, bottom layer Too sandy Flooding	1.00 1.00 0.20	Very limited Seepage Flooding	1.00 0.20	Very limited Seepage Too sandy	1.00 1.00
LsC: Lopeno	55	Very limited Too sandy Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00 1.00 0.20	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.20	Very limited Seepage Too sandy	1.00 1.00
Sauce1	40	Very limited Ponding Excess salt Depth to saturated zone Flooding	1.00 1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Salinity	1.00 1.00 1.00

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LzC: Lopeno	56	Very limited		Very limited		Very limited	
		Too sandy	1.00	Seepage	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage, bottom layer	1.00	Flooding	0.20		
Sauz	35	Very limited		Very limited		Very limited	
		Excess sodium	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.40	Sodium content	1.00
		Excess salt	1.00			Salinity	1.00
MaA: Madre	45	Very limited		Very limited		Very limited	
		Ponding	1.00	Flooding	1.00	Ponding	1.00
		Flooding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Depth to saturated zone	1.00			Sodium content	1.00
Malaquite	39	Very limited		Very limited		Very limited	
		Ponding	1.00	Flooding	1.00	Ponding	1.00
		Flooding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Excess sodium	1.00			Salinity	1.00
		Excess salt	1.00			Sodium content	1.00
MnB: Madre	48	Very limited		Very limited		Very limited	
		Ponding	1.00	Flooding	1.00	Ponding	1.00
		Flooding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Depth to saturated zone	1.00			Sodium content	1.00
Panam	43	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.01
		Depth to saturated zone	1.00				

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MoA: Montealto	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Hard to compact	1.00
		Excess sodium	1.00			Too clayey	1.00
						Sodium content	1.00
MsA: Mustang	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Flooding	1.00	Ponding	1.00
		Flooding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Depth to saturated zone	1.00				
MtB: Mustang	49	Very limited		Very limited		Very limited	
		Ponding	1.00	Flooding	1.00	Ponding	1.00
		Flooding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Depth to saturated zone	1.00				
Padre	42	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Too sandy	1.00	Seepage	1.00	Depth to saturated zone	0.01
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
MuB: Mustang	50	Very limited		Very limited		Very limited	
		Ponding	1.00	Flooding	1.00	Ponding	1.00
		Flooding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Depth to saturated zone	1.00				
Panam	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.01
		Depth to saturated zone	1.00				

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NaA: Narta	90	Very limited Excess sodium	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.40	Sodium content	1.00
		Flooding	0.40			Too clayey	0.03
		Too clayey	0.03				
NeA: Novillo	88	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Too sandy	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.40	Too sandy	1.00
		Flooding	0.40				
NfC: Nueces	90	Not limited		Very limited Seepage	1.00	Not limited	
NsC: Nueces	65	Not limited		Very limited Seepage	1.00	Not limited	
Sarita	25	Very limited Too sandy	1.00	Very limited Seepage	1.00	Very limited Seepage	1.00
		Seepage, bottom layer	1.00			Too sandy	1.00
OfA: Orelia	95	Very limited Excess sodium	1.00	Not limited		Very limited Sodium content	1.00
PaA: Padrones	90	Very limited Excess sodium	1.00	Very limited Seepage	1.00	Very limited Sodium content	1.00
PbA: Palobia	90	Very limited Excess sodium	1.00	Not limited		Very limited Sodium content	1.00
PbB: Palobia	90	Very limited Excess sodium	1.00	Not limited		Very limited Sodium content	1.00
PeB: Palobia	90	Very limited Excess sodium	1.00	Not limited		Very limited Sodium content	1.00
PfA: Palobia	55	Very limited Excess sodium	1.00	Not limited		Very limited Sodium content	1.00
Colmena	35	Not limited		Not limited		Not limited	

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PfB: Palobia	55	Very limited Excess sodium	1.00	Not limited		Very limited Sodium content	1.00
Colmena	35	Not limited		Not limited		Not limited	
PgA: Papagua	90	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 0.90	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Hard to compact Too clayey	1.00 1.00 1.00 0.90
PIT: Pits, quarry	90	Not rated		Not rated		Not rated	
PnC: Point Isabel	90	Very limited Excess sodium Too clayey Flooding	1.00 0.81 0.40	Somewhat limited Flooding	0.40	Very limited Hard to compact Sodium content Too clayey	1.00 1.00 0.81
PoB: Portalto	90	Very limited Too sandy Flooding	1.00 0.40	Very limited Seepage Flooding	1.00 0.40	Very limited Seepage Too sandy	1.00 1.00
PrC: Potrero	45	Very limited Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00 0.20	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.20	Somewhat limited Depth to saturated zone Seepage	0.86 0.50
Lopeno	33	Very limited Too sandy Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00 1.00 0.20	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.20	Very limited Seepage Too sandy	1.00 1.00
Noria	17	Very limited Ponding Seepage, bottom layer Excess sodium Depth to saturated zone Excess salt	1.00 1.00 1.00 1.00	Very limited Ponding Seepage Depth to saturated zone Flooding	1.00 1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Seepage Sodium content Salinity	1.00 1.00 1.00 1.00
PtB: Premont	90	Not limited		Not limited		Not limited	

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
QuA: Quiteria	90	Very limited Excess sodium	1.00	Not limited		Very limited Sodium content	1.00
RaB: Ramita	85	Very limited Excess sodium	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Sodium content	1.00
		Depth to saturated zone Excess salt	1.00			Salinity	1.00
RbB: Ramita	60	Very limited Excess sodium	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Sodium content	1.00
		Depth to saturated zone Excess salt	1.00			Salinity	1.00
Bordas	35	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
RoB: Rockport	90	Very limited Seepage, bottom layer Too sandy Depth to saturated zone Flooding	1.00 1.00 1.00 0.40	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Seepage Too sandy	1.00 1.00
SA: Salt flats, very frequently flooded	90	Not rated		Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated		Not rated	
SnC: Sarita	90	Very limited Too sandy	1.00	Very limited Seepage	1.00	Very limited Seepage Too sandy	1.00 1.00
SrC: Sarita	70	Very limited Too sandy	1.00	Very limited Seepage	1.00	Very limited Seepage Too sandy	1.00 1.00
Cayo	20	Very limited Excess sodium Seepage, bottom layer Excess salt	1.00 1.00 1.00	Very limited Seepage	1.00	Very limited Sodium content Salinity Seepage	1.00 1.00 0.50

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SsC: Sarita	75	Very limited Too sandy	1.00	Very limited Seepage	1.00	Very limited Seepage Too sandy	1.00 1.00
Topo	20	Very limited Ponding Excess sodium Depth to saturated zone Seepage, bottom layer	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Sodium content Seepage	1.00 1.00 1.00 0.50
StA: Satatton	90	Very limited Flooding Too sandy Excess sodium Excess salt Depth to saturated zone	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Too sandy Salinity Sodium content	1.00 1.00 1.00 1.00
SuA: Sauce1	95	Very limited Ponding Excess salt Depth to saturated zone Flooding	1.00 1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Salinity	1.00 1.00 1.00
SxB: Sauce1	65	Very limited Ponding Excess salt Depth to saturated zone Flooding	1.00 1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Ponding Depth to saturated zone Salinity	1.00 1.00 1.00
Potrero	25	Very limited Depth to saturated zone Seepage, bottom layer Flooding	1.00 1.00 0.20	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.20	Somewhat limited Depth to saturated zone Seepage	0.86 0.50
SyA: Sauz	90	Very limited Excess sodium Depth to saturated zone Excess salt Flooding	1.00 1.00 1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Sodium content Salinity	1.00 1.00 1.00

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SzA: Sauz	50	Very limited		Very limited		Very limited	
		Excess sodium	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.40	Sodium content	1.00
Sauce1	40	Excess salt	1.00			Salinity	1.00
		Flooding	0.40				
TaA: Tatton	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Excess sodium	1.00	Depth to saturated zone	1.00	Salinity	1.00
		Excess salt	1.00			Sodium content	1.00
TBA: Tatton	55	Depth to saturated zone	1.00			Too sandy	0.50
		Too sandy	0.50				
Beaches, washover fan	35	Very limited		Not rated		Very limited	
		Flooding	1.00			Depth to saturated zone	1.00
		Too sandy	1.00			Too sandy	1.00
		Excess sodium	1.00			Salinity	1.00
		Excess salt	1.00			Sodium content	1.00
		Depth to saturated zone	1.00				

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ToA: Topo	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Excess sodium	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	1.00	Sodium content	1.00
		Seepage, bottom layer	1.00	Flooding	0.40	Seepage	0.50
		Flooding	0.40				
TsA: Topo	60	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Excess sodium	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	1.00	Sodium content	1.00
		Seepage, bottom layer	1.00	Flooding	0.40	Seepage	0.50
		Flooding	0.40				
Sauce1	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Excess salt	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.40	Salinity	1.00
TwA: Twinpalms	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Too sandy	1.00	Seepage	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
Yarborough	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Excess sodium	1.00	Depth to saturated zone	1.00	Salinity	1.00
		Excess salt	1.00	Seepage	1.00	Sodium content	1.00
		Depth to saturated zone	1.00			Seepage	0.50
VaA: Victine	97	Very limited		Not limited		Very limited	
		Excess sodium	1.00			Hard to compact	1.00
		Too clayey	0.93			Sodium content	1.00
						Too clayey	0.93

Table 21.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VcA: Victoria	85	Very limited Too clayey Excess sodium	1.00 1.00	Not limited		Very limited Hard to compact Too clayey Sodium content	1.00 1.00 1.00
VcB: Victoria	95	Very limited Too clayey Excess sodium	1.00 1.00	Not limited		Very limited Hard to compact Too clayey Sodium content	1.00 1.00 1.00
W: Water	100	Not rated		Not rated		Not rated	
YaA: Yarborough	90	Very limited Flooding Excess sodium Excess salt Depth to saturated zone Seepage, bottom layer	1.00 1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Salinity Sodium content Seepage	1.00 1.00 1.00 0.50
YtC: Yturria	95	Very limited Seepage, bottom layer	1.00	Very limited Seepage	1.00	Somewhat limited Seepage	0.50

Table 22.--Source of Gravel and Sand

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
AcC: Arenisco	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.35 0.39
AnC: Arenisco	70	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.35 0.39
Topo	20	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
ArA: Arrada	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
AsC: Arrada	55	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Lalinda	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
BA: Baffin	95	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.05 0.06
BbA: Banquete	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.06
BdA: Barrada	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
BE1: Beaches	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.35 0.35
BE2: Beaches	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.35 0.35
BE3: Beaches	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.35 0.35
BE4: Beaches	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.35 0.35
BrA: Bordas	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CaA: Calallen	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CeA: Carreta	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
ChA: Cayo	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CkA: Clareville	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CkB: Clareville	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CmA: Colmena	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
CmB: Colmena	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CnA: Crane11	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CnB: Crane11	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CrA: Czar	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CrB: Czar	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CzA: Czar	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
DaE: Daggerhill	86	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.35
DdE: Daggerhill	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.35
Mustang	41	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.30
		Thickest layer	0.00	Bottom layer	0.40
DeE: Daggerhill	45	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.35
Satatton	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.11
		Thickest layer	0.00	Bottom layer	0.13
DfB: Delfina	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
DnB: Delfina	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
DrA: Dietrich	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
DsB: Dietrich	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.28
DTE: Dune land	95	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.38
DU: Dune land	95	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.38
DXC: Dune land	55	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.38
Sataton	42	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.11 0.13
EdA: Edroy	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
EsA: Estella	80	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.30
FaC: Falfurrias	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.34 0.40
FaE: Falfurrias	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.34 0.40

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
FmC: Falfurrias	45	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.34 0.40
Atras	30	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.04 0.39
Medanito	20	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.03 0.37
FoD: Falfurrias	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.34 0.40
Cayo	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
FtD: Falfurrias	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.34 0.40
Topo	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
GeB: Gertrudis	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
GhE: Greenhill	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.40 0.40
GmE: Greenhill	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.40 0.40
Mustang	41	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.30 0.35
GRE: Riverwash	55	Not rated		Not rated	
Gullied land	35	Not rated		Not rated	

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
IcA: Incell	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
LaC: Lalinda	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
LpC: Lopeno	40	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.10 0.36
Potrero	28	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.07 0.36
Arenisco	22	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.35 0.39
LsC: Lopeno	55	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.10 0.36
Saucel	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
LzC: Lopeno	56	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.10 0.36
Sauz	35	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.04 0.06
MaA: Madre	45	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.35 0.35
Malaquite	39	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.30 0.30
MnB: Madre	48	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.35 0.35

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Panam	43	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.35
MoA: Montealto	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MsA: Mustang	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.30
		Thickest layer	0.00	Thickest layer	0.30
MtB: Mustang	49	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.30
		Thickest layer	0.00	Bottom layer	0.35
Padre	42	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.35
MuB: Mustang	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.30
		Thickest layer	0.00	Bottom layer	0.40
Panam	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.40
		Thickest layer	0.00	Thickest layer	0.40
NaA: Narta	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
NeA: Novillo	88	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.35
		Thickest layer	0.00	Thickest layer	0.35
NfC: Nueces	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.28
NsC: Nueces	65	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.28
Sarita	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.33

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
OfA: Orelia	95	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.01 0.02
PaA: Padrones	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.29
PbA: Palobia	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
PbB: Palobia	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
PeB: Palobia	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
PfA: Palobia	55	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Colmena	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
PfB: Palobia	55	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Colmena	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
PgA: Papagua	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
PIT: Pits, quarry	90	Not rated		Not rated	
PnC: Point Isabel	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
PoB: Portalto	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.33
PrC: Potrero	45	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.07 0.36
Lopeno	33	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.10 0.36
Noria	17	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.08 0.29
PtB: Premont	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
QuA: Quiteria	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RaB: Ramita	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RbB: Ramita	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Bordas	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RoB: Rockport	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.25 0.25
SA: Salt flats, very frequently flooded	90	Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated	

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
SnC: Sarita	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.33
SrC: Sarita	70	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.33
Cayo	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SsC: Sarita	75	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.33
Topo	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
StA: Satatton	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.11
		Thickest layer	0.00	Bottom layer	0.13
SuA: Sauce1	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SxB: Sauce1	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Potrero	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.07
		Thickest layer	0.00	Thickest layer	0.36
SyA: Sauz	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.04
		Thickest layer	0.00	Thickest layer	0.06
SzA: Sauz	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.04
		Thickest layer	0.00	Thickest layer	0.06
Sauce1	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
TaA: Tatton	95	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.07 0.07
TBA: Tatton	55	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.13 0.15
Beaches, washover fan	35	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.12
ToA: Topo	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
TsA: Topo	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sauce1	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
TwA: Twinpalms	55	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.11 0.27
Yarborough	40	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.03 0.06
VaA: Victine	97	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
VcA: Victoria	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
VcB: Victoria	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
W: Water	100	Not rated		Not rated	

Table 22.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Gravel Source		Sand Source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
YaA: Yarborough	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.06
YtC: Yturria	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.06
		Thickest layer	0.00	Bottom layer	0.09

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Poor Too clayey Sodium content Salinity	0.00 0.00 0.50	Poor Low strength Shrink-swell Wetness	0.00 0.12 0.76	Poor Too clayey Sodium content Salinity	0.00 0.00 0.00
AcC: Arenisco	85	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.04	Good		Poor Too sandy	0.00
AnC: Arenisco	70	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.04	Good		Poor Too sandy	0.00
Topo	20	Poor Sodium content Too alkaline Low content of organic matter	0.00 0.00 0.06	Poor Wetness	0.00	Poor Wetness Sodium content	0.00 0.00
ArA: Arrada	90	Poor Droughty Low content of organic matter Salinity	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
AsC: Arrada	55	Poor Droughty Low content of organic matter Salinity	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
Lalinda	35	Poor Sodium content Salinity Low content of organic matter	0.00 0.00 0.68	Fair Low strength	0.78	Poor Sodium content Salinity	0.00 0.00
BA: Baffin	95	Poor Salinity Sodium content Low content of organic matter	0.00 0.00 0.18	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00

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Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BbA: Banquete	90	Poor Too clayey Too acid	0.00 0.84	Poor Shrink-swell	0.00	Poor Too clayey	0.00
BdA: Barrada	90	Poor Too clayey Droughty Salinity	0.00 0.00 0.00	Poor Wetness Low strength Shrink-swell	0.00 0.00 0.21	Poor Too clayey Wetness Sodium content	0.00 0.00 0.00
BE1: Beaches	90	Poor Too sandy Sodium content Salinity	0.00 0.00 0.03	Poor Wetness	0.00	Poor Wetness Salinity Too sandy	0.00 0.00 0.00
BE2: Beaches	90	Poor Too sandy Sodium content Salinity	0.00 0.00 0.03	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
BE3: Beaches	90	Poor Too sandy Sodium content Salinity	0.00 0.00 0.03	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
BE4: Beaches	90	Poor Too sandy Sodium content Salinity	0.00 0.00 0.03	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
BrA: Bordas	95	Poor Wind erosion Too alkaline Low content of organic matter	0.00 0.00 0.60	Poor Wetness Low strength Shrink-swell	0.00 0.78 0.79	Poor Wetness	0.00
CaA: Calallen	85	Fair Low content of organic matter Too clayey	0.18 0.96	Poor Low strength Shrink-swell	0.00 0.87	Fair Too clayey	0.69
CeA: Carreta	95	Poor Sodium content Too clayey Salinity	0.00 0.00 0.00	Poor Low strength Shrink-swell	0.00 0.00	Poor Sodium content Too clayey Salinity	0.00 0.00 0.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ChA: Cayo	90	Poor Salinity Sodium content Low content of organic matter	0.00 0.00 0.61	Good		Poor Sodium content Salinity	0.00 0.00
CkA: Clareville	90	Poor Too clayey Carbonate content Low content of organic matter	0.00 0.16 0.60	Poor Low strength Shrink-swell	0.00 0.31	Poor Too clayey	0.00
CkB: Clareville	90	Poor Too clayey Carbonate content Low content of organic matter	0.00 0.16 0.60	Poor Low strength Shrink-swell	0.00 0.31	Poor Too clayey	0.00
CmA: Colmena	90	Fair Low content of organic matter	0.88	Fair Low strength Shrink-swell	0.78 0.89	Good	
CmB: Colmena	90	Fair Low content of organic matter	0.88	Fair Low strength Shrink-swell	0.78 0.89	Good	
CnA: Crane11	85	Poor Too clayey	0.00	Poor Low strength Shrink-swell	0.00 0.12	Poor Too clayey	0.00
CnB: Crane11	90	Poor Too clayey	0.00	Poor Low strength Shrink-swell	0.00 0.12	Poor Too clayey	0.00
CrA: Czar	90	Poor Too alkaline	0.00	Good		Good	
CrB: Czar	90	Poor Too alkaline	0.00	Good		Good	
CzA: Czar	90	Good		Fair Low strength Shrink-swell	0.22 0.90	Good	

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DaE: Daggerhill	86	Poor Too sandy Wind erosion Too alkaline	0.00 0.00 0.00	Good		Poor Too sandy	0.00
DdE: Daggerhill	50	Poor Too sandy Wind erosion Too alkaline	0.00 0.00 0.00	Good		Poor Too sandy	0.00
Mustang	41	Poor Too sandy Wind erosion Too alkaline	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Too sandy Sodium content	0.00 0.00 0.97
DeE: Daggerhill	45	Poor Too sandy Wind erosion Too alkaline	0.00 0.00 0.00	Good		Poor Too sandy	0.00
Satatton	40	Poor Wind erosion Droughty Salinity	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
DfB: Delfina	90	Fair Low content of organic matter	0.60	Fair Shrink-swell	0.92	Good	
DnB: Delfina	95	Fair Low content of organic matter	0.60	Fair Shrink-swell	0.93	Good	
DrA: Dietrich	90	Poor Wind erosion Sodium content Low content of organic matter	0.00 0.00 0.32	Poor Low strength Wetness Shrink-swell	0.00 0.29 0.89	Poor Sodium content Wetness Salinity	0.00 0.29 0.88
DsB: Dietrich	90	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.22	Fair Wetness	0.29	Poor Too sandy Wetness	0.00 0.29
DTE: Dune land	95	Poor Too sandy Low content of organic matter Droughty	0.00 0.01 0.01	Good		Poor Too sandy	0.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DU: Dune land	95	Poor Too sandy Low content of organic matter Droughty	0.00 0.01 0.01	Good		Poor Too sandy	0.00
DXC: Dune land	55	Poor Too sandy Low content of organic matter Droughty	0.00 0.01 0.01	Good		Poor Too sandy	0.00
Satatton	42	Poor Wind erosion Droughty Salinity	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
EdA: Edroy	95	Poor Too clayey	0.00	Poor Wetness Low strength Shrink-swell	0.00 0.00 0.15	Poor Wetness Too clayey	0.00 0.00
EsA: Estella	80	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.02	Fair Wetness	0.53	Poor Too sandy Wetness	0.00 0.53
FaC: Falfurrias	90	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.03	Good		Poor Too sandy	0.00
FaE: Falfurrias	90	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.03	Good		Poor Too sandy Slope	0.00 0.84
FmC: Falfurrias	45	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.03	Good		Poor Too sandy	0.00
Atras	30	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.05	Good		Poor Too sandy	0.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Medanito	20	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.40	Good		Poor Too sandy	0.00
FoD: Falfurrias	60	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.03	Good		Poor Too sandy	0.00
Cayo	30	Poor Salinity Sodium content Low content of organic matter	0.00 0.00 0.61	Good		Poor Sodium content Salinity	0.00 0.00
FtD: Falfurrias	60	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.03	Good		Poor Too sandy	0.00
Topo	30	Poor Sodium content Too alkaline Low content of organic matter	0.00 0.00 0.06	Poor Wetness	0.00	Poor Wetness Sodium content	0.00 0.00
GeB: Gertrudis	90	Fair Low content of organic matter Carbonate content Sodium content	0.18 0.80 0.97	Poor Low strength Shrink-swell	0.00 0.94	Fair Sodium content	0.98
GhE: Greenhill	85	Poor Too sandy Wind erosion Droughty	0.00 0.00 0.25	Good		Poor Too sandy	0.00
GmE: Greenhill	50	Poor Too sandy Wind erosion Droughty	0.00 0.00 0.25	Good		Poor Too sandy	0.00
Mustang	41	Poor Too sandy Wind erosion Droughty	0.00 0.00 0.01	Poor Wetness	0.00	Poor Wetness Too sandy Rock fragments	0.00 0.00 0.98

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GRE: Riverwash	55	Not rated		Not rated		Not rated	
Gullied land	35	Not rated		Not rated		Not rated	
IcA: Incell	90	Poor Too clayey	0.00	Poor Wetness Shrink-swell	0.00 0.67	Poor Wetness Too clayey	0.00 0.00
LaC: Lalinda	90	Poor Sodium content Salinity Low content of organic matter	0.00 0.00 0.68	Fair Low strength	0.78	Poor Sodium content Salinity	0.00 0.00
LpC: Lopeno	40	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.10	Good		Poor Too sandy Sodium content	0.00 0.98
Potrero	28	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.05	Fair Wetness	0.53	Poor Too sandy Wetness	0.00 0.53
Arenisco	22	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.04	Good		Poor Too sandy	0.00
LsC: Lopeno	55	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.10	Good		Poor Too sandy Sodium content	0.00 0.98
Sauce1	40	Poor Salinity Droughty Sodium content	0.00 0.00 0.22	Poor Wetness	0.00	Poor Wetness Salinity Sodium content	0.00 0.00 0.22
LzC: Lopeno	56	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.10	Good		Poor Too sandy Sodium content	0.00 0.98

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sauz	35	Poor Wind erosion Sodium content Salinity	0.00 0.00 0.00	Fair Wetness	0.14	Poor Sodium content Salinity Wetness	0.00 0.00 0.14
MaA: Madre	45	Poor Too sandy Wind erosion Sodium content	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Too sandy	0.00 0.00 0.00
Malaquite	39	Poor Too sandy Wind erosion Salinity	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
MnB: Madre	48	Poor Too sandy Wind erosion Sodium content	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Too sandy	0.00 0.00 0.00
Panam	43	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.12	Good		Poor Too sandy	0.00
MoA: Montealto	90	Poor Too clayey Sodium content Salinity	0.00 0.40 0.50	Poor Shrink-swell Wetness Low strength	0.00 0.00 0.00	Poor Too clayey Wetness Salinity	0.00 0.00 0.00
MsA: Mustang	85	Poor Too sandy Wind erosion Droughty	0.00 0.00 0.01	Poor Wetness	0.00	Poor Wetness Too sandy Rock fragments	0.00 0.00 0.98
MtB: Mustang	49	Poor Too sandy Wind erosion Droughty	0.00 0.00 0.01	Poor Wetness	0.00	Poor Wetness Too sandy Rock fragments	0.00 0.00 0.98
Padre	42	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.12	Good		Poor Too sandy	0.00
MuB: Mustang	50	Poor Too sandy Wind erosion Too alkaline	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Too sandy Sodium content	0.00 0.00 0.97

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Panam	40	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.12	Good		Poor Too sandy	0.00
NaA: Narta	90	Poor Droughty Sodium content Too alkaline	0.00 0.00 0.00	Poor Wetness Low strength Shrink-swell	0.00 0.00 0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
NeA: Novillo	88	Poor Too sandy Wind erosion Droughty	0.00 0.00 0.13	Poor Wetness	0.00	Poor Wetness Too sandy Sodium content	0.00 0.00 0.66
NfC: Nueces	90	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.22	Good		Poor Too sandy	0.00
NsC: Nueces	65	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.22	Good		Poor Too sandy	0.00
Sarita	25	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.17	Good		Poor Too sandy	0.00
OfA: Orelia	95	Fair Low content of organic matter Sodium content Too acid	0.11 0.78 0.97	Poor Low strength Shrink-swell	0.00 0.82	Fair Sodium content	0.78
PaA: Padrones	90	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.05	Good		Poor Too sandy	0.00
PbA: Palobia	90	Poor Wind erosion Low content of organic matter Sodium content	0.00 0.01 0.60	Fair Shrink-swell	0.91	Fair Sodium content	0.60

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PbB: Palobia	90	Poor Wind erosion Low content of organic matter Sodium content	0.00 0.01 0.60	Fair Shrink-swell	0.91	Fair Sodium content	0.60
PeB: Palobia	90	Fair Low content of organic matter Sodium content Salinity	0.18 0.60 0.88	Fair Shrink-swell	0.91	Fair Sodium content	0.60
PfA: Palobia	55	Fair Low content of organic matter Sodium content Salinity	0.18 0.60 0.88	Fair Shrink-swell	0.91	Fair Sodium content	0.60
Colmena	35	Fair Low content of organic matter	0.88	Fair Low strength Shrink-swell	0.78 0.89	Good	
PfB: Palobia	55	Fair Low content of organic matter Sodium content Salinity	0.18 0.60 0.88	Fair Shrink-swell	0.91	Fair Sodium content	0.60
Colmena	35	Fair Low content of organic matter	0.88	Fair Low strength Shrink-swell	0.78 0.89	Good	
PgA: Papagua	90	Poor Too clayey Low content of organic matter	0.00 0.60	Poor Wetness Low strength Shrink-swell	0.00 0.00 0.18	Poor Wetness Too clayey	0.00 0.00
PIT: Pits, quarry	90	Not rated		Not rated		Not rated	
PnC: Point Isabel	90	Poor Sodium content Too clayey Salinity	0.00 0.00 0.12	Poor Low strength Shrink-swell	0.00 0.12	Poor Sodium content Too clayey Salinity	0.00 0.00 0.50

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PoB: Portalto	90	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.17	Good		Poor Too sandy	0.00
PrC: Potrero	45	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.05	Fair Wetness	0.53	Poor Too sandy Wetness	0.00 0.53
Lopeno	33	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.10	Good		Poor Too sandy Sodium content	0.00 0.98
Noria	17	Poor Wind erosion Sodium content Too sandy	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Too sandy	0.00 0.00 0.00
PtB: Premont	90	Fair Low content of organic matter	0.60	Fair Shrink-swell	0.87	Good	
QuA: Quiteria	90	Poor Wind erosion Sodium content Low content of organic matter	0.00 0.00 0.02	Good		Poor Sodium content	0.00
RaB: Ramita	85	Poor Wind erosion Sodium content Too alkaline	0.00 0.00 0.00	Poor Wetness Low strength Shrink-swell	0.00 0.00 0.92	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
RbB: Ramita	60	Poor Wind erosion Sodium content Too alkaline	0.00 0.00 0.00	Poor Wetness Low strength Shrink-swell	0.00 0.00 0.92	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
Bordas	35	Poor Wind erosion Too alkaline Low content of organic matter	0.00 0.00 0.60	Poor Wetness Low strength Shrink-swell	0.00 0.78 0.79	Poor Wetness	0.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RoB: Rockport	90	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.12	Good		Poor Too sandy	0.00
SA: Salt flats, very frequently flooded	90	Not rated		Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated		Not rated	
SnC: Sarita	90	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.17	Good		Poor Too sandy	0.00
SrC: Sarita	70	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.17	Good		Poor Too sandy	0.00
Cayo	20	Poor Salinity Sodium content Low content of organic matter	0.00 0.00 0.61	Good		Poor Sodium content Salinity	0.00 0.00
SsC: Sarita	75	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.17	Good		Poor Too sandy	0.00
Topo	20	Poor Sodium content Too alkaline Low content of organic matter	0.00 0.00 0.06	Poor Wetness	0.00	Poor Wetness Sodium content	0.00 0.00
StA: Satatton	90	Poor Wind erosion Droughty Salinity	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
SuA: Sauce1	95	Poor Salinity Droughty Sodium content	0.00 0.00 0.22	Poor Wetness	0.00	Poor Wetness Salinity Sodium content	0.00 0.00 0.22

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SxB: Sauce1	65	Poor Salinity Droughty Sodium content	0.00 0.00 0.22	Poor Wetness	0.00	Poor Wetness Salinity Sodium content	0.00 0.00 0.22
Potrero	25	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.05	Fair Wetness	0.53	Poor Too sandy Wetness	0.00 0.53
SyA: Sauz	90	Poor Wind erosion Sodium content Salinity	0.00 0.00 0.00	Fair Wetness	0.14	Poor Sodium content Salinity Wetness	0.00 0.00 0.14
SzA: Sauz	50	Poor Wind erosion Sodium content Salinity	0.00 0.00 0.00	Fair Wetness	0.14	Poor Sodium content Salinity Wetness	0.00 0.00 0.14
Sauce1	40	Poor Salinity Droughty Sodium content	0.00 0.00 0.22	Poor Wetness	0.00	Poor Wetness Salinity Sodium content	0.00 0.00 0.22
TaA: Tatton	95	Poor Wind erosion Salinity Sodium content	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
TBA: Tatton	55	Poor Wind erosion Salinity Sodium content	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
Beaches, washover fan	35	Poor Salinity Sodium content Too sandy	0.00 0.00 0.00	Poor Wetness	0.00	Poor Wetness Sodium content Salinity	0.00 0.00 0.00
ToA: Topo	90	Poor Sodium content Too alkaline Low content of organic matter	0.00 0.00 0.06	Poor Wetness	0.00	Poor Wetness Sodium content	0.00 0.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 23.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TsA: Topo	60	Poor Sodium content Too alkaline Low content of organic matter	0.00 0.00 0.06	Poor Wetness	0.00	Poor Wetness Sodium content	0.00 0.00
Sauce1	30	Poor Salinity Droughty Sodium content	0.00 0.00 0.22	Poor Wetness	0.00	Poor Wetness Salinity Sodium content	0.00 0.00 0.22
TwA: Twinpalms	55	Poor Too sandy Wind erosion Droughty	0.00 0.00 0.01	Good		Poor Too sandy Hard to reclaim (rock fragments)	0.00 0.84
Yarborough	40	Poor Salinity Sodium content Droughty	0.00 0.00 0.01	Fair Wetness	0.14	Poor Sodium content Salinity Wetness	0.00 0.00 0.14
VaA: Victine	97	Poor Too clayey Sodium content	0.00 0.00	Poor Shrink-swell Low strength	0.00 0.00	Poor Too clayey Sodium content	0.00 0.00
VcA: Victoria	85	Poor Too clayey Low content of organic matter Salinity	0.00 0.18 0.88	Poor Shrink-swell Low strength	0.00 0.00	Poor Too clayey Sodium content Salinity	0.00 0.90 0.97
VcB: Victoria	95	Poor Too clayey Low content of organic matter Salinity	0.00 0.18 0.88	Poor Shrink-swell Low strength	0.00 0.00	Poor Too clayey Sodium content Salinity	0.00 0.90 0.97
W: Water	100	Not rated		Not rated		Not rated	
YaA: Yarborough	90	Poor Salinity Sodium content Droughty	0.00 0.00 0.01	Fair Wetness	0.14	Poor Sodium content Salinity Wetness	0.00 0.00 0.14
YtC: Yturria	95	Fair Low content of organic matter Too sandy	0.27 0.32	Good		Fair Too sandy	0.32

Table 24.--Ponds and Embankments

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA: Aransas	90	Not limited		Very limited Hard to pack Depth to saturated zone Salinity	1.00 0.95 0.50	Very limited Slow refill Salinity and saturated zone Unstable excavation walls Depth to saturated zone	1.00 0.78 0.10 0.02
AcC: Arenisco	85	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Unstable excavation walls Depth to saturated zone	1.00 0.81
AnC: Arenisco	70	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Unstable excavation walls Depth to saturated zone	1.00 0.81
Topo	20	Very limited Seepage	1.00	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 1.00	Somewhat limited Unstable excavation walls Salinity and saturated zone	0.10 0.03
ArA: Arrada	90	Somewhat limited Seepage	0.03	Very limited Ponding Depth to saturated zone Salinity Piping	1.00 1.00 1.00 1.00	Very limited Salinity and saturated zone Slow refill Unstable excavation walls	1.00 0.97 0.10
AsC: Arrada	55	Somewhat limited Seepage	0.03	Very limited Ponding Depth to saturated zone Salinity Piping	1.00 1.00 1.00 1.00	Very limited Salinity and saturated zone Slow refill Unstable excavation walls	1.00 0.97 0.10
Lalinda	35	Somewhat limited Seepage	0.03	Very limited Piping Salinity	1.00 1.00	Very limited Depth to water	1.00

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BA: Baffin	95	Somewhat limited Seepage	0.03	Very limited Ponding	1.00	Very limited Salinity and saturated zone	1.00
				Depth to saturated zone	1.00	Slow refill	0.30
				Salinity	1.00	Unstable excavation walls	0.10
				Piping Seepage	1.00 0.10		
BbA: Banquete	90	Very limited Seepage	1.00	Very limited Piping	1.00	Very limited Depth to water	1.00
BdA: Barrada	90	Not limited		Very limited Ponding	1.00	Very limited Slow refill	1.00
				Depth to saturated zone	1.00	Salinity and saturated zone	1.00
				Salinity	1.00	Unstable excavation walls	0.10
				Hard to pack	1.00		
BE1: Beaches	90	Not rated		Very limited Depth to saturated zone	1.00	Very limited Unstable excavation walls	1.00
				Seepage	1.00	Salinity and saturated zone	0.99
				Piping Salinity	1.00 0.97		
BE2: Beaches	90	Not rated		Very limited Depth to saturated zone	1.00	Very limited Unstable excavation walls	1.00
				Seepage	1.00	Salinity and saturated zone	0.99
				Piping Salinity	1.00 0.97		
BE3: Beaches	90	Not rated		Very limited Depth to saturated zone	1.00	Very limited Unstable excavation walls	1.00
				Seepage	1.00	Salinity and saturated zone	0.99
				Piping Salinity	1.00 0.97		

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Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BE4: Beaches	90	Not rated		Very limited Depth to saturated zone Seepage Piping Salinity	1.00 1.00 1.00 0.97	Very limited Unstable excavation walls Salinity and saturated zone	1.00 0.99
BrA: Bordas	95	Somewhat limited Seepage	0.01	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.13	Somewhat limited Unstable excavation walls	0.10
CaA: Calallen	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.10	Very limited Depth to water	1.00
CeA: Carreta	95	Not limited		Very limited Salinity Hard to pack	1.00 1.00	Very limited Depth to water	1.00
ChA: Cayo	90	Very limited Seepage	1.00	Very limited Salinity Piping	1.00 1.00	Very limited Depth to water	1.00
CkA: Clareville	90	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
CkB: Clareville	90	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
CmA: Colmena	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.05	Very limited Depth to water	1.00
CmB: Colmena	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.05	Very limited Depth to water	1.00
CnA: Crane11	85	Not limited		Very limited Hard to pack	1.00	Very limited Depth to water	1.00
CnB: Crane11	90	Not limited		Very limited Hard to pack	1.00	Very limited Depth to water	1.00
CrA: Czar	90	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CrB: Czar	90	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
CzA: Czar	90	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
DaE: Daggerhill	86	Very limited Seepage Slope	1.00 0.68	Very limited Seepage	1.00	Very limited Depth to water	1.00
DdE: Daggerhill	50	Very limited Seepage Slope	1.00 0.68	Very limited Seepage	1.00	Very limited Depth to water	1.00
Mustang	41	Not limited		Very limited Ponding Depth to saturated zone Seepage Piping	1.00 1.00 1.00 0.22	Very limited Unstable excavation walls	1.00
DeE: Daggerhill	45	Very limited Seepage Slope	1.00 0.32	Very limited Seepage	1.00	Very limited Depth to water	1.00
Satatton	40	Not limited		Very limited Depth to saturated zone Salinity Seepage Piping	1.00 1.00 1.00 1.00	Very limited Unstable excavation walls Slow refill Salinity and saturated zone	1.00 1.00 1.00
DfB: Delfina	90	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
DnB: Delfina	95	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
DrA: Dietrich	90	Somewhat limited Seepage	0.03	Very limited Depth to saturated zone Piping	1.00 1.00	Very limited Depth to water	1.00
DsB: Dietrich	90	Very limited Seepage	1.00	Very limited Depth to saturated zone Piping	1.00 1.00	Very limited Depth to water	1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DTE: Dune land	95	Not rated		Very limited Seepage	1.00	Very limited Depth to water	1.00
DU: Dune land	95	Not rated		Very limited Seepage	1.00	Very limited Depth to water	1.00
DXC: Dune land	55	Not rated		Very limited Seepage	1.00	Very limited Depth to water	1.00
Satatton	42	Not limited		Very limited Depth to saturated zone Salinity Seepage Piping	1.00 1.00 1.00 1.00	Very limited Unstable excavation walls Slow refill Salinity and saturated zone	1.00 1.00 1.00
EdA: Edroy	95	Somewhat limited Seepage	0.53	Very limited Ponding Depth to saturated zone Hard to pack	1.00 1.00 1.00 0.37	Somewhat limited Slow refill Unstable excavation walls	0.47 0.10
EsA: Estella	80	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Unstable excavation walls	1.00
FaC: Falfurrias	90	Very limited Seepage Slope	1.00 0.08	Very limited Seepage	1.00	Very limited Depth to water	1.00
FaE: Falfurrias	90	Very limited Seepage Slope	1.00 1.00	Very limited Seepage	1.00	Very limited Depth to water	1.00
FmC: Falfurrias	45	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Depth to water	1.00
Atiras	30	Very limited Seepage	1.00	Very limited Seepage Piping	1.00 0.02	Very limited Depth to water	1.00
Medanito	20	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.02	Very limited Depth to water	1.00
FoD: Falfurrias	60	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Depth to water	1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Cayo	30	Very limited Seepage	1.00	Very limited Salinity Piping	1.00 1.00	Very limited Depth to water	1.00
FtD: Falfurrias	60	Very limited Seepage Slope	1.00 0.32	Very limited Seepage	1.00	Very limited Depth to water	1.00
Topo	30	Very limited Seepage	1.00	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 1.00	Somewhat limited Unstable excavation walls Salinity and saturated zone	0.10 0.03
GeB: Gertrudis	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.12	Very limited Depth to water	1.00
ChE: Greenhill	85	Very limited Seepage Slope	1.00 0.68	Very limited Seepage	1.00	Very limited Depth to water	1.00
GmE: Greenhill	50	Very limited Seepage Slope	1.00 0.68	Very limited Seepage	1.00	Very limited Depth to water	1.00
Mustang	41	Not limited		Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Unstable excavation walls	1.00
GRE: Riverwash	55	Not rated		Not rated		Not rated	
Gullied land	35	Not rated		Not rated		Not rated	
IcA: Incell	90	Not limited		Very limited Ponding Depth to saturated zone Piping	1.00 1.00 1.00	Very limited Slow refill Unstable excavation walls	1.00 0.10
LaC: Lalinda	90	Somewhat limited Seepage	0.03	Very limited Piping Salinity	1.00 1.00	Very limited Depth to water	1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LpC: Lopeno	40	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Unstable excavation walls	1.00
				Piping	0.10	Depth to saturated zone	0.81
Potrero	28	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00	Very limited Unstable excavation walls	1.00
					0.72		
Arenisco	22	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Depth to water	1.00
LsC: Lopeno	55	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Unstable excavation walls	1.00
				Piping	0.10	Depth to saturated zone	0.81
Sauce1	40	Somewhat limited Seepage	0.70	Very limited Ponding	1.00	Very limited Salinity and saturated zone	1.00
				Depth to saturated zone	1.00	Slow refill	0.30
				Salinity	1.00	Unstable excavation walls	0.10
				Piping	0.78		
LzC: Lopeno	56	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Unstable excavation walls	1.00
				Piping	0.10	Depth to saturated zone	0.81
Sauz	35	Somewhat limited Seepage	0.03	Very limited Depth to saturated zone	1.00	Very limited Salinity and saturated zone	1.00
				Piping	1.00	Slow refill	0.97
				Salinity	1.00	Unstable excavation walls	0.10
MaA: Madre	45	Not limited		Very limited Ponding	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	1.00		
				Seepage	1.00		
				Piping	1.00		

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Malaquite	39	Not limited		Very limited Ponding	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	1.00	Slow refill	1.00
				Salinity	1.00	Salinity and saturated zone	1.00
				Seepage	1.00		
				Piping	1.00		
MnB: Madre	48	Not limited		Very limited Ponding	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	1.00		
				Seepage	1.00		
				Piping	1.00		
Panam	43	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	0.22	Depth to saturated zone	0.40
				Piping	0.05		
MoA: Montealto	90	Not limited		Very limited Ponding	1.00	Very limited Slow refill	1.00
				Depth to saturated zone	1.00	Salinity and saturated zone	0.78
				Hard to pack	1.00	Unstable excavation walls	0.10
				Salinity	0.50		
MsA: Mustang	85	Not limited		Very limited Ponding	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	1.00		
				Seepage	1.00		
MtB: Mustang	49	Not limited		Very limited Ponding	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	1.00		
				Seepage	1.00		
Padre	42	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	0.22	Slow refill	1.00
						Depth to saturated zone	0.40

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MuB: Mustang	50	Not limited		Very limited Ponding	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	1.00		
				Seepage	1.00		
				Piping	0.22		
Panam	40	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	0.22	Depth to saturated zone	0.40
NaA: Narta	90	Not limited		Very limited Depth to saturated zone	1.00	Very limited Depth to water	1.00
				Salinity	1.00		
				Piping	1.00		
NeA: Novillo	88	Not limited		Very limited Ponding	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	1.00	Slow refill	1.00
				Seepage	1.00		
				Piping	0.34		
NfC: Nueces	90	Very limited Seepage	1.00	Somewhat limited Piping	0.78	Very limited Depth to water	1.00
NsC: Nueces	65	Very limited Seepage	1.00	Somewhat limited Piping	0.78	Very limited Depth to water	1.00
Sarita	25	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Depth to water	1.00
				Piping	0.22		
OfA: Orelia	95	Not limited		Very limited Piping	1.00	Very limited Depth to water	1.00
PaA: Padrones	90	Very limited Seepage	1.00	Very limited Piping	1.00	Very limited Depth to water	1.00
PbA: Palobia	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
PbB: Palobia	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PeB: Palobia	90	Somewhat limited Seepage	0.70	Very limited Piping Salinity	1.00 0.12	Very limited Depth to water	1.00
PfA: Palobia	55	Somewhat limited Seepage	0.70	Very limited Piping Salinity	1.00 0.12	Very limited Depth to water	1.00
Colmena	35	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.05	Very limited Depth to water	1.00
PfB: Palobia	55	Somewhat limited Seepage	0.70	Very limited Piping Salinity	1.00 0.12	Very limited Depth to water	1.00
Colmena	35	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.05	Very limited Depth to water	1.00
PgA: Papagua	90	Somewhat limited Seepage	0.02	Very limited Ponding Depth to saturated zone	1.00 1.00	Somewhat limited Unstable excavation walls	0.10
PIT: Pits, quarry	90	Not rated		Not rated		Not rated	
PnC: Point Isabel	90	Somewhat limited Slope	0.32	Very limited Hard to pack Salinity	1.00 0.88	Very limited Depth to water	1.00
PoB: Portalto	90	Very limited Seepage	1.00	Very limited Seepage Piping	1.00 0.22	Very limited Depth to water	1.00
PrC: Potrero	45	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.72	Very limited Unstable excavation walls	1.00
Lopeno	33	Very limited Seepage	1.00	Very limited Seepage Piping	1.00 0.10	Very limited Unstable excavation walls Depth to saturated zone	1.00 0.81

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Noria	17	Very limited Seepage	1.00	Very limited Ponding	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	1.00	Salinity and saturated zone	1.00
				Piping	1.00		
				Salinity	1.00		
				Seepage	0.99		
PtB: Premont	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.01	Very limited Depth to water	1.00
QuA: Quiteria	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
				Salinity	0.88		
RaB: Ramita	85	Somewhat limited Seepage	0.03	Very limited Depth to saturated zone	1.00	Very limited Salinity and saturated zone	1.00
				Piping	1.00	Unstable excavation walls	0.10
				Salinity	1.00		
RbB: Ramita	60	Somewhat limited Seepage	0.03	Very limited Depth to saturated zone	1.00	Very limited Salinity and saturated zone	1.00
				Piping	1.00	Unstable excavation walls	0.10
				Salinity	1.00		
Bordas	35	Somewhat limited Seepage	0.01	Very limited Ponding	1.00	Somewhat limited Unstable excavation walls	0.10
				Depth to saturated zone	1.00		
				Piping	0.13		
RoB: Rockport	90	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Unstable excavation walls	1.00
						Depth to saturated zone	0.96
SA: Salt flats, very frequently flooded	90	Not rated		Not rated		Not rated	
SF: Salt flats, ponded	90	Not rated		Not rated		Not rated	

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SnC: Sarita	90	Very limited Seepage	1.00	Very limited Seepage Piping	1.00 0.22	Very limited Depth to water	1.00
SrC: Sarita	70	Very limited Seepage	1.00	Very limited Seepage Piping	1.00 0.22	Very limited Depth to water	1.00
Cayo	20	Very limited Seepage	1.00	Very limited Salinity Piping	1.00 1.00	Very limited Depth to water	1.00
SsC: Sarita	75	Very limited Seepage	1.00	Very limited Seepage Piping	1.00 0.22	Very limited Depth to water	1.00
Topo	20	Very limited Seepage	1.00	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 1.00	Somewhat limited Unstable excavation walls Salinity and saturated zone	0.10 0.03
StA: Satatton	90	Not limited		Very limited Depth to saturated zone Salinity Seepage Piping	1.00 1.00 1.00 1.00	Very limited Unstable excavation walls Salinity and saturated zone	1.00 1.00
SuA: Sauce1	95	Somewhat limited Seepage	0.70	Very limited Ponding Depth to saturated zone Salinity Piping	1.00 1.00 1.00 0.78	Very limited Salinity and saturated zone Slow refill Unstable excavation walls	1.00 0.30 0.10
SxB: Sauce1	65	Somewhat limited Seepage	0.70	Very limited Ponding Depth to saturated zone Salinity Piping	1.00 1.00 1.00 0.78	Very limited Salinity and saturated zone Slow refill Unstable excavation walls	1.00 0.30 0.10

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Potrero	25	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.72	Very limited Unstable excavation walls	1.00
SyA: Sauz	90	Somewhat limited Seepage	0.03	Very limited Depth to saturated zone Piping Salinity	1.00 1.00 1.00	Very limited Salinity and saturated zone Slow refill Unstable excavation walls	1.00 0.97 0.10
SzA: Sauz	50	Somewhat limited Seepage	0.03	Very limited Depth to saturated zone Piping Salinity	1.00 1.00 1.00	Very limited Salinity and saturated zone Slow refill Unstable excavation walls	1.00 0.97 0.10
Sauce1	40	Somewhat limited Seepage	0.70	Very limited Ponding Depth to saturated zone Salinity Piping	1.00 1.00 1.00 0.78	Very limited Salinity and saturated zone Slow refill Unstable excavation walls	1.00 0.30 0.10
TaA: Tatton	95	Not limited		Very limited Depth to saturated zone Salinity Piping Seepage	1.00 1.00 1.00 0.30	Very limited Unstable excavation walls Slow refill Salinity and saturated zone	1.00 1.00 1.00
TBA: Tatton	55	Not limited		Very limited Depth to saturated zone Salinity Seepage Piping	1.00 1.00 1.00 1.00	Very limited Unstable excavation walls Slow refill Salinity and saturated zone	1.00 1.00 1.00
Beaches, washover fan	35	Not rated		Very limited Depth to saturated zone Salinity Seepage Piping	1.00 1.00 1.00 1.00	Very limited Unstable excavation walls Slow refill Salinity and saturated zone	1.00 1.00 1.00

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ToA: Topo	90	Very limited Seepage	1.00	Very limited Ponding	1.00	Somewhat limited Unstable excavation walls	0.10
				Depth to saturated zone	1.00	Salinity and saturated zone	0.03
				Piping	1.00		
TsA: Topo	60	Very limited Seepage	1.00	Very limited Ponding	1.00	Somewhat limited Unstable excavation walls	0.10
				Depth to saturated zone	1.00	Salinity and saturated zone	0.03
				Piping	1.00		
Sauce1	30	Somewhat limited Seepage	0.70	Very limited Ponding	1.00	Very limited Salinity and saturated zone	1.00
				Depth to saturated zone	1.00	Slow refill	0.30
				Salinity	1.00	Unstable excavation walls	0.10
				Piping	0.78		
TwA: Twinpalms	55	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Unstable excavation walls	1.00
				Depth to saturated zone	0.01	Depth to saturated zone	0.70
						Slow refill	0.19
Yarborough	40	Very limited Seepage	1.00	Very limited Depth to saturated zone	1.00	Very limited Salinity and saturated zone	1.00
				Salinity	1.00	Unstable excavation walls	0.10
				Piping	1.00		
VaA: Victine	97	Not limited		Very limited Hard to pack	1.00	Very limited Depth to water	1.00
VcA: Victoria	85	Not limited		Very limited Hard to pack	1.00	Very limited Depth to water	1.00
				Salinity	0.12		
VcB: Victoria	95	Not limited		Very limited Hard to pack	1.00	Very limited Depth to water	1.00
				Salinity	0.12		
W: Water	100	Not rated		Not rated		Not rated	

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 24.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
YaA: Yarborough	90	Very limited Seepage	1.00	Very limited Depth to saturated zone Salinity Piping	1.00 1.00 1.00	Very limited Salinity and saturated zone Unstable excavation walls	1.00 0.10
YtC: Yturria	95	Very limited Seepage Slope	1.00 0.08	Somewhat limited Seepage	0.13	Very limited Depth to water	1.00

Table 25.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
AaA: Aransas	0-22	*Clay	*CH, CL	*A-7-6, A-7-5	0	0	100	100	80-100	67-92	47-76	25-43
	22-80	*Clay, Clay loam	*CH,	*A-7-6,	0	0	100	100	80-100	67-92	46-72	25-44
AcC: Arenisco	0-7	*Fine sand	*SP-SM, SM	*A-2-4, A-3	0	0	100	100	92-98	9-15	0-21	NP-3
	7-80	*Fine sand	*SP-SM, SM	*A-3, A-2-4	0	0	100	100	93-98	9-15	0-18	NP-3
AnC: Arenisco	0-7	*Fine sand	*SP-SM, SM	*A-2-4, A-3	0	0	100	100	92-98	9-15	0-21	NP-3
	7-80	*Fine sand	*SP-SM, SM	*A-3, A-2-4	0	0	100	100	93-98	9-15	0-18	NP-3
Topo	0-10	*Fine sandy loam, Sandy loam	*SC, SC-SM	*A-4,	0	0	100	100	87-94	37-44	19-29	4-10
	10-51	*Fine sandy loam, Sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	86-95	37-46	18-29	4-11
	51-80	*Fine sandy loam, Sandy loam, sandy clay loam	*SC, CL, SC-SM	*A-4, A-6	0	0	100	100	89-100	39-59	20-40	6-21
ArA: Arrada	0-16	*Sandy clay loam	*SC, SC-SM, CL	*A-6, A-2-4	0	0	95-100	90-100	68-96	33-56	20-39	6-21
	16-54	*Fine sandy loam, Sandy clay loam, clay loam	*SC, CL	*A-6, A-7-6	0	0	95-100	90-100	81-100	47-70	26-43	11-25
	54-80	*Fine sandy loam, Stratified loamy fine sand to clay	*SC, SC-SM, CL	*A-6, A-4, A-7-6	0	0	95-100	90-100	72-100	36-67	18-43	4-25
AsC: Arrada	0-16	*Sandy clay loam	*SC, SC-SM, CL	*A-6, A-2-4	0	0	95-100	90-100	68-96	33-56	20-39	6-21
	16-54	*Fine sandy loam, Clay loam, sandy clay loam	*SC, CL	*A-6, A-7-6	0	0	95-100	90-100	81-100	47-70	26-43	11-25
	54-80	*Fine sandy loam, Stratified loamy fine sand to clay	*SC, SC-SM, CL	*A-6, A-4, A-7-6	0	0	95-100	90-100	72-100	36-67	18-43	4-25

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
Lalinda	0-10	*Fine sandy loam	*SC, CL	*A-6, A-4	0	0	100	100	87-100	47-62	27-45	9-21
	10-65	*Sandy clay loam, Fine sandy loam, clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	78-95	42-59	27-45	12-25
	65-80	*Fine sandy loam, Fine sandy loam, sandy clay loam	*CL,	*A-6, A-7-6, A-4	0	0	100	100	87-100	51-76	26-50	10-29
BA: Baffin	0-2	*Sandy clay loam	*SC, CL, SM	*A-6, A-2-4	0	0	96-100	93-100	56-89	22-52	0-40	NP-21
	2-8	*Fine sandy loam, Loamy fine sand	*SC, SC-SM	*A-2-4, A-6	0	0	97-100	93-100	81-99	25-39	19-31	4-13
	8-80	*Fine sandy loam, Sandy clay loam, loamy fine sand	*SC-SM, SC	*A-2-4, A-6	0	0	97-100	93-100	81-100	24-46	19-38	4-19
BbA: Banquete	0-6	*Clay	*CH, CL	*A-7-6,	0	0	100	100	93-100	65-79	41-66	20-37
	6-21	*Clay, Clay loam, sandy clay	*CH,	*A-7-6, A-7-5	0	0	100	100	92-100	70-84	51-78	27-45
	21-44	*Clay, Clay loam, sandy clay	*CH,	*A-7-6, A-7-5	0	0	100	100	92-100	70-84	51-78	27-45
	44-56	*Clay, Clay loam, sandy clay	*CH,	*A-7-6, A-7-5	0	0	100	100	92-100	70-84	51-78	27-45
	56-80	*Loamy fine sand	*SM, SC-SM	*A-2-4,	0	0	100	100	90-99	24-31	0-22	NP-4
BdA: Barrada	0-52	*Clay	*CH,	*A-7-6,	0	0-1	96-100	91-100	80-100	70-92	54-69	32-44
	52-80	*Sandy clay loam, Clay, silty clay loam	*SC, CH	*A-6, A-7-6	0	0-1	96-100	91-100	78-100	46-75	39-63	21-40
BE1: Beaches	0-7	*Stratified fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	97-100	90-95	10-12	0-16	NP-1
	7-80	*Fine sand	*SP-SM,	*A-2-4,	0	0	100	97-100	90-95	10-12	0-16	NP-1
BE2: Beaches	0-7	*Stratified paragravelly fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-95	10-12	0-16	NP-1
	7-80	*Stratified gravel to fine sand	*SP-SM,	*A-1-b,	0	0	100	97-100	---	---	0-16	NP-1

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
BE3: Beaches	0-7	*Stratified paragravelly fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-95	10-12	0-16	NP-1
	7-80	*Stratified gravel to fine sand, Error	*SP-SM,	*A-1-b,	0	0	100	97-100	---	---	0-16	NP-1
BE4: Beaches	0-7	*Stratified very paragravelly fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-95	10-12	0-16	NP-1
	7-80	*Stratified gravel to fine sand	*SP-SM,	*A-1-b,	0	0	100	97-100	---	---	0-16	NP-1
BrA: Bordas	0-11	*Loamy fine sand, Fine sand, fine sandy loam	*SM, SC	*A-2-4, A-4	0	0	100	100	94-100	34-47	0-29	NP-10
	11-18	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-98	43-60	30-47	12-25
	18-70	*Sandy clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	82-95	45-58	33-47	15-25
	70-80	*Sandy clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	77-90	42-55	33-48	15-25
CaA: Calallen	0-8	*Sandy clay loam	*SC, CL	*A-6,	0	0	100	100	80-90	42-52	27-39	11-19
	8-38	*Sandy clay loam, Clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	82-89	48-55	38-47	19-25
	38-80	*Sandy clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	79-94	44-59	31-46	13-25
CeA: Carreta	0-7	*Sandy clay loam	*CL, CH	*A-7-6, A-6	0	0	100	100	93-100	58-68	37-51	17-25
	7-21	*Clay, Clay loam, sandy clay	*CH, CL	*A-7-5, A-7-6	0	0	100	100	77-100	58-83	46-76	25-44
	21-38	*Clay, Clay loam	*CH, CL	*A-7-6,	0	0	100	100	82-100	60-80	46-70	25-40
	38-80	*Clay, Clay loam	*CH, CL	*A-7-6,	0	0	100	100	83-100	61-81	46-67	25-38
ChA: Cayo	0-19	*Fine sandy loam, Loam	*SC, SC-SM	*A-6, A-4	0	0	100	100	87-94	39-46	22-33	6-12
	19-41	*Fine sandy loam, Loam, sandy clay loam	*SC, CL, SC-SM	*A-6, A-4	0	0	100	100	88-99	40-51	21-34	6-15
	41-60	*Fine sandy loam, Loam, sandy clay loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	88-95	39-46	21-30	6-12
	60-80	*Fine sandy loam, Sandy clay loam, loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	88-95	39-46	21-30	6-12

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
CkA: Clareville	0-11	*Clay loam	*CL, CH	*A-7-6, A-6	0	0	100	100	86-96	67-77	37-51	17-25
	11-25	*Clay, Clay loam, sandy clay	*CH, CL	*A-7-6,	0	0	100	100	88-98	71-81	47-61	25-32
	25-46	*Clay, Clay loam, sandy clay	*CH, CL	*A-7-6,	0	0	100	100	88-98	71-81	46-59	25-33
	46-80	*Clay loam, Sandy clay loam, loam	*CL, CH	*A-7-6, A-6	0	0	100	100	84-99	64-79	35-51	17-29
CkB: Clareville	0-11	*Clay loam	*CL, CH	*A-7-6, A-6	0	0	100	100	86-96	67-77	37-51	17-25
	11-25	*Clay, Clay loam, sandy clay	*CH, CL	*A-7-6,	0	0	100	100	88-98	71-81	47-61	25-32
	25-46	*Clay, Clay loam, sandy clay	*CH, CL	*A-7-6,	0	0	100	100	88-98	71-81	46-59	25-33
	46-80	*Clay loam, Sandy clay loam, loam	*CL, CH	*A-7-6, A-6	0	0	100	100	84-99	64-79	35-51	17-29
CmA: Colmena	0-11	*Fine sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	87-99	37-49	21-35	4-13
	11-39	*Sandy clay loam, Clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-94	45-58	33-47	15-25
	39-80	*Sandy clay loam, Clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-94	45-58	33-47	15-25
CmB: Colmena	0-11	*Fine sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	87-99	37-49	21-35	4-13
	11-39	*Sandy clay loam, Clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-94	45-58	33-47	15-25
	39-80	*Sandy clay loam, Clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-94	45-58	33-47	15-25
CnA: Crane11	0-10	*Sandy clay loam, Clay loam	*CL, SC, CH	*A-7-6, A-6	0	0	100	100	81-96	46-61	33-51	13-25
	10-43	*Clay, Sandy clay, clay loam	*CH, CL	*A-7-6,	0	0	100	100	80-100	67-92	46-72	25-44
	43-80	*Clay, Silty clay	*CH,	*A-7-6,	0	0	100	100	85-100	72-87	50-66	29-40

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
CnB: Cranel1	0-10	*Sandy clay loam, Clay loam	*CL, SC, CH	*A-7-6, A-6	0	0	100	100	80-98	47-65	39-60	19-32
	10-43	*Clay, Clay loam, sandy clay	*CH, CL	*A-7-6,	0	0	100	100	80-100	67-92	46-72	25-44
	43-80	*Clay, Silty clay	*CH,	*A-7-6,	0	0	100	100	85-100	72-87	50-66	29-40
CrA: Czar	0-7	*Fine sandy loam	*SC, SM	*A-4, A-6	0	0	100	100	87-100	36-49	20-37	3-13
	7-61	*Sandy clay loam, Fine sandy loam	*SC, CL	*A-6, A-7-6	0	0	100	100	82-92	43-53	28-42	12-19
	61-80	*Sandy clay loam, Clay loam	*CL,	*A-7-6, A-6	0	0	100	100	82-91	51-60	36-46	17-24
CrB: Czar	0-7	*Fine sandy loam	*SC, SM	*A-4, A-6	0	0	100	100	87-100	36-49	20-37	3-13
	7-61	*Sandy clay loam, Fine sandy loam	*SC, CL	*A-6, A-7-6	0	0	100	100	82-92	43-53	28-42	12-19
	61-80	*Sandy clay loam, Clay loam	*CL,	*A-7-6, A-6	0	0	100	100	82-91	51-60	36-46	17-24
CzA: Czar	0-13	*Sandy clay loam	*SC, CL	A-6, A-4	0	0	100	100	81-93	42-54	27-44	10-19
	13-49	*Sandy clay loam, Clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	82-90	46-54	38-48	18-24
	49-80	*Clay loam, Sandy clay loam	*CL,	*A-7-6, A-6	0	0	100	100	86-95	67-76	36-46	17-24
DaE: Daggerhill	0-18	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-95	10-12	0-17	NP-1
	18-80	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-95	10-12	0-17	NP-1
DdE: Daggerhill	0-18	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-95	10-12	0-17	NP-1
	18-80	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-95	10-12	0-17	NP-1
Mustang	0-11	*Fine sand	*SP-SM, SP	*A-2-4, A-3	0	0-3	92-100	80-100	73-96	7-14	0-19	NP-2
	11-80	*Fine sand	*SP-SM, SP	*A-3, A-2-4	0	0-3	92-100	80-100	75-98	7-14	0-18	NP-2

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
DeE: Daggerhill	0-18	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-95	10-12	0-17	NP-1
	18-80	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-95	10-12	0-17	NP-1
Satatton	0-17	*Fine sand	*SC-SM, SM	*A-2-4,	0	0	100	100	90-98	15-23	15-25	1-7
	17-80	*Fine sand	*SC-SM, SM	*A-2-4,	0	0	100	100	91-99	14-22	15-25	1-7
DfB: Delfina	0-15	*Loamy fine sand	*SC, SM	*A-4, A-6	0	0	100	100	87-100	36-49	18-33	3-13
	15-33	*Sandy clay loam, Clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	81-91	45-55	35-47	17-25
	33-80	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-93	46-58	33-47	16-25
DnB: Delfina	0-16	*Fine sandy loam	*SC, SM	*A-4, A-6	0	0	100	100	87-100	36-49	18-33	3-13
	16-34	*Sandy clay loam, Clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	81-91	45-55	35-47	17-25
	34-80	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-93	46-58	33-47	16-25
DrA: Dietrich	0-12	*Fine sand	*SC-SM, SM	*A-2-4,	0	0	100	100	89-99	22-32	0-26	NP-7
	12-45	*Sandy clay loam, Clay loam, loam	*CL,	*A-7-6, A-6	0	0	100	100	81-91	51-61	35-46	17-25
	45-80	*Sandy clay loam, Loam	*CL, SC	*A-6, A-7-6	0	0	100	100	85-100	49-64	31-46	13-25
DsB: Dietrich	0-33	*Loamy fine sand	*SM, SP-SM, SC-SM	*A-2-4,	0	0	100	100	92-100	11-21	0-26	NP-7
	33-38	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	79-96	42-59	28-45	12-25
	38-80	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-98	44-61	27-45	12-25
DTE: Dune land	0-80	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-94	10-11	0-14	NP
DU: Dune land	0-80	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-94	10-11	0-14	NP

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
DXC: Dune land	0-80	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	100	93-94	10-11	0-14	NP
Satatton	0-17	*Fine sand	*SC-SM, SM	*A-2-4,	0	0	100	100	90-98	15-23	15-25	1-7
	17-80	*Fine sand	*SC-SM, SM	*A-2-4,	0	0	100	100	91-99	14-22	15-25	1-7
EdA: Edroy	0-18	*Clay	*CH,	*A-7-6,	0	0	100	100	85-100	72-87	51-72	29-40
	18-57	*Clay, Clay loam, sandy clay	*CH, CL	*A-7-6,	0	0	100	100	86-100	69-84	47-66	25-36
	57-70	*Clay loam, Sandy clay loam, loam	*CL,	*A-7-6, A-6	0	0	100	100	78-93	58-73	32-49	13-25
	70-80	*Sandy clay loam, Stratified loamy fine sand to clay loam	*SC, SM, ML	*A-6, A-7-6, A-2-4	0	0	100	100	69-100	31-66	17-52	2-28
EsA: Estella	0-17	*Fine sand, Loamy fine sand	*SP-SM, SC	*A-2-4, A-3	0	0	100	100	92-100	10-22	0-27	NP-8
	17-57	*Fine sand, Loamy fine sand	*SP-SM, SC	*A-2-4, A-3	0	0	100	100	92-100	10-22	0-27	NP-8
	57-80	*Fine sandy loam, Loamy fine sand	*SC, CL, SC-SM	*A-4, A-7-6	0	0	100	100	90-100	41-63	24-44	7-24
FaC: Falfurrias	0-15	*Fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-18	0-23	NP-5
	15-80	*Fine sand	*SP-SM, SC-SM	*A-3, A-2-4	0	0	100	100	93-99	10-16	0-20	NP-4
FaE: Falfurrias	0-15	*Fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-18	0-23	NP-5
	15-80	*Fine sand	*SP-SM, SC-SM	*A-3, A-2-4	0	0	100	100	92-94	9-11	0-0	NP
FmC: Falfurrias	0-15	*Fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-18	0-23	NP-5
	15-80	*Fine sand	*SP-SM, SC-SM	*A-3, A-2-4	0	0	100	100	93-100	10-18	0-22	NP-5
Atiras	0-17	*Fine sand	*SP-SM, SC-SM	*A-2-4,	0	0	100	100	94-100	11-17	0-22	NP-4
	17-58	*Fine sand	*SP-SM, SC-SM	*A-3, A-2-4	0	0	100	100	93-99	10-16	0-20	NP-4
	58-61	*Fine sand, Fine sandy loam, loamy fine sand	*SM, SC	*A-2-4,	0	0	100	100	94-100	17-25	17-26	3-9
	61-80	*Fine sandy loam, Sandy clay loam, loamy fine sand	*SC, SC-SM	*A-2-4, A-6	0	0	100	100	87-100	30-43	21-36	5-15

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
Medanito	0-26	*Fine sand, Loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-99	10-16	0-24	NP-4
	26-32	*Fine sand, Loamy fine sand	*SP-SM, SC-SM, SM	*A-2-4, A-3	0	0	100	100	93-98	10-15	0-20	NP-3
	32-36	*Loamy fine sand, Fine sandy loam	*SC-SM, SC	*A-2-4,	0	0	100	100	94-98	24-28	21-26	6-9
	36-42	*Loamy fine sand, Sandy clay loam, fine sandy loam	*SC-SM, SC	*A-2-4, A-6	0	0	100	100	94-100	24-39	22-36	6-17
	42-61	*Fine sandy loam, Loamy fine sand, sandy clay loam	*SC, CL, SC-SM	*A-6, A-4	0	0	100	100	85-100	38-53	22-36	6-17
	61-80	*Fine sandy loam, Loamy fine sand	*SC, SC-SM	*A-6, A-2-4	0	0	100	100	86-96	30-40	22-32	6-14
FoD: Falfurrias	0-15	*Fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-18	0-23	NP-5
	15-80	*Fine sand	*SP-SM, SC-SM	*A-3, A-2-4	0	0	100	100	93-100	10-18	0-22	NP-5
Cayo	0-19	*Fine sandy loam, Loam	*SC, SC-SM	*A-6, A-4	0	0	100	100	87-94	39-46	22-33	6-12
	19-41	*Fine sandy loam, Loam, sandy clay loam	*SC, CL, SC-SM	*A-6, A-4	0	0	100	100	88-99	40-51	21-34	6-15
	41-60	*Fine sandy loam, Sandy clay loam, loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	88-95	39-46	21-30	6-12
	60-80	*Fine sandy loam, Sandy clay loam, loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	88-95	39-46	21-30	6-12
FtD: Falfurrias	0-15	*Fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-18	0-23	NP-5
	15-80	*Fine sand	*SP-SM, SC-SM	*A-3, A-2-4	0	0	100	100	93-100	10-18	0-22	NP-5
Topo	0-10	*Fine sandy loam, Sandy loam	*SC, SC-SM	*A-4,	0	0	100	100	87-94	37-44	19-29	4-10
	10-51	*Fine sandy loam, Sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	86-95	37-46	18-29	4-11
	51-80	*Fine sandy loam, Sandy clay loam, sandy loam	*SC, CL, SC-SM	*A-4, A-6	0	0	100	100	89-100	39-59	20-40	6-21

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Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
GeB: Gertrudis	0-17	*Fine sandy loam	*SC,	*A-6, A-4	0	0	100	100	92-97	43-48	27-37	9-13
	17-41	*Sandy clay loam, Clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	83-91	47-55	34-44	16-22
	41-80	*Clay loam, Sandy clay loam	*CL,	*A-6, A-7-6	0	0	100	100	85-97	66-78	33-46	16-25
GhE: Greenhill	0-28	*Fine sand	*SP-SM,	*A-3, A-2-4	0	0	100	100	94-96	10-12	0-17	NP-1
	28-80	*Fine sand	*SP-SM,	*A-3, A-2-4	0	0	100	100	94-96	10-12	0-17	NP-1
GmE: Greenhill	0-21	*Fine sand	*SP-SM,	*A-3, A-2-4	0	0	100	100	94-96	10-12	0-17	NP-1
	21-80	*Fine sand	*SP-SM,	*A-3, A-2-4	0	0	100	100	94-96	10-12	0-17	NP-1
Mustang	0-19	*Fine sand	*SP-SM, SP	*A-2-4, A-3	0	0-3	92-100	80-100	74-97	8-15	0-19	NP-2
	19-80	*Fine sand	*SP-SM, SP	*A-3, A-2-4	0	0-3	92-100	80-100	74-97	7-14	0-18	NP-2
GRE: Riverwash	---	---	---	---	---	---	---	---	---	---	---	---
Gullied land	---	---	---	---	---	---	---	---	---	---	---	---
IcA: Incell	0-25	*Clay	*CH, CL	*A-7-6,	0	0	100	100	86-100	69-84	47-66	25-36
	25-60	*Sandy clay loam, Clay loam, loam	*CL, SC	*A-7-6, A-6	0	0	100	100	74-91	41-58	30-48	12-25
	60-80	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-7-6, A-6	0	0	100	100	74-91	41-58	29-47	12-25
LaC: Lalinda	0-10	*Fine sandy loam	*SC, CL	*A-6, A-4	0	0	100	100	87-100	47-62	27-45	9-21
	10-65	*Sandy clay loam, Fine sandy loam, clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	78-95	42-59	27-45	12-25
	65-80	*Fine sandy loam, Fine sandy loam, sandy clay loam	*CL,	*A-6, A-7-6, A-4	0	0	100	100	87-100	51-76	26-50	10-29

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
LpC: Lopeno	0-5	*Fine sand, Loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	91-100	9-20	0-25	NP-7
	5-41	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-19	0-23	NP-6
	41-65	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-20	0-22	NP-6
	65-69	*Fine sand, Loamy fine sand	*SM, SC	*A-2-4, A-3	0	0	100	100	91-100	14-24	0-26	NP-8
	69-80	*Loamy fine sand, Fine sand, fine sandy loam, sandy clay loam	*SC, SM	*A-2-4, A-2-6, A-4, A-6	0	0	100	100	89-100	18-34	18-34	3-16
Potrero	0-10	*Fine sand, Loamy fine sand	*SP-SM, SC-SM	*A-3, A-2-4	0	0	100	100	94-100	10-19	0-23	NP-6
	10-30	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-20	0-23	NP-7
	30-35	*Loamy fine sand, Fine sand	*SC-SM, SC, SM	*A-2-4,	0	0	100	100	88-98	19-29	0-26	NP-8
	35-42	*Loamy fine sand, Fine sandy loam, sandy clay loam	*SC, SC-SM, SM	*A-2-4, A-2-6, A-4, A-6	0	0	100	100	90-100	22-38	18-34	3-16
	42-80	*Fine sandy loam, Sandy clay loam, loamy fine sand	*SC, SC-SM, SM	*A-2-4, A-2-6, A-4, A-6	0	0	100	100	84-100	20-36	18-34	3-16
Arenisco	0-7	*Fine sand	*SP-SM, SM	*A-2-4, A-3	0	0	100	100	92-98	9-15	0-21	NP-3
	7-80	*Fine sand	*SP-SM, SM	*A-3, A-2-4	0	0	100	100	93-98	9-15	0-18	NP-3
LsC: Lopeno	0-5	*Fine sand, Loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	91-100	9-20	0-25	NP-7
	5-41	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-19	0-23	NP-6
	41-65	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-20	0-22	NP-6
	65-69	*Fine sand, Loamy fine sand	*SM, SC	*A-2-4, A-3	0	0	100	100	91-100	14-24	0-26	NP-8
	69-80	*Loamy fine sand, Fine sand, fine sandy loam, sandy clay loam	*SC, SM	*A-2-4, A-2-6, A-4, A-6	0	0	100	100	89-100	18-34	18-34	3-16

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
Sauce1	In											
	0-4	*Fine sandy loam	*SC-SM, SM, SC	*A-4, A-6	0	0	100	100	85-98	37-50	16-30	1-11
	4-44	*Fine sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	89-96	39-46	21-30	6-11
	44-80	*Fine sandy loam, Loamy sand, sandy clay loam	*SC, CL, SM	*A-6, A-4, A-2-4	0	0	100	100	81-100	32-56	17-40	2-20
LzC: Lopeno	0-5	*Fine sand, Loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	91-100	9-20	0-25	NP-7
	5-41	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-19	0-23	NP-6
	41-65	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-20	0-22	NP-6
	65-69	*Fine sand, Loamy fine sand	*SM, SC	*A-2-4, A-3	0	0	100	100	91-100	14-24	0-26	NP-8
	69-80	*Loamy fine sand, Fine sandy loam, fine sand, sandy clay loam	*SC, SM	*A-2-4, A-2-6, A-4, A-6	0	0	100	100	89-100	18-34	18-34	3-16
Sauz	0-7	*Loamy fine sand	*SM, SC-SM	*A-2-4,	0	0	100	100	91-96	26-31	0-22	NP-4
	7-13	*Fine sandy loam, Sandy clay loam, sandy loam	*SC, SC-SM	*A-2-4, A-6	0	0	100	100	84-98	22-36	19-34	4-15
	13-24	*Fine sandy loam, Sandy clay loam, sandy loam	*SC, SC-SM	*A-2-6, A-6, A-2-4	0	0	100	100	84-99	25-40	20-37	6-17
	24-55	*Fine sandy loam, Sandy clay loam, sandy loam	*SC, SC-SM	*A-2-4, A-6	0	0	100	100	91-100	28-38	20-33	6-13
	55-80	*Fine sandy loam, Sandy clay loam, sandy loam	*SC, SC-SM	*A-2-6, A-6, A-2-4	0	0	100	100	85-97	26-38	20-34	6-15
MaA: Madre	0-11	*Fine sand	*SP-SM, SP	*A-3, A-2-4	0	0-3	97-100	90-100	83-97	8-14	0-19	NP-2
	11-41	*Fine sand	*SP-SM, SP	*A-3, A-2-4	0	0-3	97-100	90-100	83-97	8-14	0-18	NP-2
	41-46	*Fine sand	*SP-SM, SP	*A-3, A-2-4	0	0-3	97-100	90-100	83-97	8-14	0-18	NP-2
	46-80	*Fine sand	*SP-SM, SP	*A-3, A-2-4	0	0-3	97-100	90-100	83-97	8-14	0-18	NP-2
Malaquite	0-5	*Fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0-3	97-100	90-100	82-98	8-16	0-21	NP-4
	5-21	*Fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0-3	97-100	90-100	82-98	8-16	0-20	NP-4
	21-27	*Fine sand, Sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0-3	97-100	90-100	82-98	8-16	0-20	NP-4
	27-80	*Fine sand, Sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0-3	97-100	90-100	82-98	8-16	0-20	NP-4

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
In												
MnB: Madre	0-8	*Fine sand	*SP-SM, SP	*A-3, A-2-4	0	0-3	97-100	90-100	83-97	8-14	0-19	NP-2
	8-80	*Fine sand	*SP-SM, SP	*A-3, A-2-4	0	0-3	97-100	90-100	83-97	8-14	0-18	NP-2
Panam	0-23	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	97-100	90-95	10-12	0-16	NP-1
	23-38	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	97-100	90-95	10-12	0-16	NP-1
	38-80	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	97-100	90-95	10-12	0-16	NP-1
MoA: Montealto	0-18	*Clay	*CH, MH	*A-7-5, A-7-6	0	0	100	100	82-100	71-91	53-84	29-46
	18-47	*Clay	*CH,	*A-7-6, A-7-5	0	0	100	100	88-100	77-92	56-80	33-46
	47-80	*Clay	*CH,	*A-7-6, A-7-5	0	0	100	100	82-100	71-91	51-80	29-46
MsA: Mustang	0-19	*Fine sand	*SP-SM, SP	*A-2-4, A-3	0	0-3	92-100	80-100	73-96	7-14	0-19	NP-2
	19-80	*Fine sand	*SP-SM, SP	*A-2-4, A-3	0	0-3	92-100	80-100	73-96	7-14	0-18	NP-2
MtB: Mustang	0-19	*Fine sand	*SP-SM, SP	*A-2-4, A-3	0	0-3	92-100	80-100	74-96	8-14	0-18	NP-1
	19-80	*Fine sand	*SP-SM, SP	*A-3, A-2-4	0	0-3	92-100	80-100	74-95	7-12	0-16	NP-1
Padre	0-19	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	97-100	90-95	10-12	0-16	NP-1
	19-28	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	97-100	90-95	10-12	0-16	NP-1
	28-80	*Fine sand	*SP-SM,	*A-2-4, A-3	0	0	100	97-100	90-95	10-12	0-16	NP-1
MuB: Mustang	0-11	*Fine sand	*SP-SM, SP	*A-2-4, A-3	0	0-3	92-100	80-100	73-96	7-14	0-19	NP-2
	11-80	*Fine sand	*SP-SM, SP	*A-3, A-2-4	0	0-3	92-100	80-100	75-98	7-14	0-18	NP-2
Panam	0-9	*Fine sand	*SP-SM, SP	*A-2-4, A-3	0	0	100	97-100	90-96	10-13	0-17	NP-1
	9-36	*Fine sand	*SP-SM,	*A-3, A-2-4	0	0	100	97-100	91-97	10-13	0-17	NP-1
	36-80	*Fine sand	*SP-SM,	*A-3, A-2-4	0	0	100	97-100	91-97	10-13	0-17	NP-1
NaA: Narta	0-6	*Loam	*CL, CL-ML	*A-6, A-4	0	0	100	100	92-100	60-70	21-36	6-13
	6-20	*Clay loam, Clay, silty clay	*CH, CL	*A-7-6,	0	0	100	100	98-100	68-78	46-61	25-34
	20-49	*Clay loam, Clay, sandy clay	*CL, CH	*A-7-6,	0	0	100	100	92-100	64-79	41-61	21-34
	49-80	*Clay loam, Clay, sandy clay	*CL, CH	*A-7-6, A-6	0	0	100	100	88-100	55-78	34-60	15-34

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
NeA: Novillo	0-2	*Slightly decomposed plant material	*PT,	*A-8,	0	0	---	---	---	---	---	---
	2-12	*Fine sand, Sand	*SP-SM, SM	*A-2-4,	0	0	100	100	94-96	11-13	0-16	NP-1
	12-80	*Fine sand, Sand	*SP-SM, SM	*A-2-4,	0	0	100	97-100	91-96	11-13	0-16	NP-1
NfC: Nueces	0-33	*Fine sand	*SM, SP-SM, SC-SM	*A-2-4,	0	0	100	100	92-100	11-21	0-26	NP-7
	33-44	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	79-96	42-59	28-45	12-25
	44-80	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-98	44-61	27-45	12-25
NsC: Nueces	0-33	*Fine sand	*SM, SP-SM, SC-SM	*A-2-4,	0	0	100	100	92-100	11-21	0-26	NP-7
	33-44	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	79-96	42-59	28-45	12-25
	44-80	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-98	44-61	27-45	12-25
Sarita	0-64	*Fine sand, Loamy fine sand	*SP-SM, SC	*A-2-4, A-3	0	0	100	100	93-100	10-22	0-27	NP-8
	64-80	*Fine sandy loam, Sandy clay loam, loamy fine sand	*SC, CL, SC-SM	*A-4, A-7-6	0	0	100	100	91-100	42-65	23-46	7-24
OfA: Orelia	0-10	*Fine sandy loam	*SC, SC-SM	*A-2-4, A-6	0	0	100	100	91-99	30-38	21-37	6-16
	10-15	*Sandy clay loam, Sandy clay, clay loam	*SC, CL	*A-6, A-7-6	0	0	100	100	92-100	40-52	36-50	17-26
	15-30	*Sandy clay loam, Clay loam	*SC,	*A-6, A-7-6	0	0	100	100	92-100	39-51	36-45	17-23
	30-80	*Sandy clay loam, Clay loam	*SC,	*A-6, A-7-6	0	0	100	100	91-100	39-51	33-44	15-23
PaA: Padrones	0-26	*Fine sand, Loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	90-100	9-19	0-24	NP-6
	26-80	*Sandy clay loam, Loamy fine sand, fine sandy loam	*CL, SC-SM	*A-6, A-7-6, A-2-4	0	0	100	100	63-90	29-56	19-44	4-25

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
PbA: Palobia	0-14	*Loamy fine sand, Fine sandy loam	*SM, SP-SM, SC-SM	*A-2-4, A-4	0	0	100	100	94-100	35-43	16-26	1-7
	14-31	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-98	43-60	29-47	12-25
	31-80	*Sandy clay loam, Fine sandy loam	*SC, CL	*A-6, A-7-6	0	0	100	100	82-99	43-60	29-47	12-25
PbB: Palobia	0-14	*Loamy fine sand, Fine sandy loam	*SM, SP-SM, SC-SM	*A-2-4, A-4	0	0	100	100	94-100	35-43	16-26	1-7
	14-31	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-98	43-60	29-47	12-25
	31-80	*Sandy clay loam, Fine sandy loam	*SC, CL	*A-6, A-7-6	0	0	100	100	82-99	43-60	29-47	12-25
PeB: Palobia	0-14	*Fine sandy loam	*SC-SM, SC	*A-4, A-6, A-2-4	0	0	100	100	85-100	34-50	16-33	1-13
	14-31	*Sandy clay loam, Clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	81-91	45-55	35-47	17-25
	31-80	*Sandy clay loam, Fine sandy loam	*CL,	*A-6, A-7-6	0	0	100	100	83-92	47-56	34-44	16-23
PfA: Palobia	0-14	*Fine sandy loam	*SC-SM, SC	*A-4, A-6, A-2-4	0	0	100	100	85-100	34-50	16-33	1-13
	14-31	*Sandy clay loam, Clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	81-91	45-55	35-47	17-25
	31-80	*Sandy clay loam, Fine sandy loam	*CL,	*A-6, A-7-6	0	0	100	100	83-92	47-56	34-44	16-23
Colmena	0-11	*Fine sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	87-99	37-49	21-35	4-13
	11-39	*Sandy clay loam, Clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-94	45-58	33-47	15-25
	39-80	*Sandy clay loam, Clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-94	45-58	33-47	15-25

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
PfB: Palobia	0-14	*Fine sandy loam	*SC-SM, SC	*A-4, A-6, A-2-4	0	0	100	100	85-100	34-50	16-33	1-13
	14-31	*Sandy clay loam, Clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	81-91	45-55	35-47	17-25
	31-80	*Sandy clay loam, Fine sandy loam	*CL,	*A-6, A-7-6	0	0	100	100	83-92	47-56	34-44	16-23
Colmena	0-11	*Fine sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	87-99	37-49	21-35	4-13
	11-39	*Sandy clay loam, Clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-94	45-58	33-47	15-25
	39-80	*Sandy clay loam, Clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-94	45-58	33-47	15-25
PgA: Papagua	0-12	*Fine sandy loam	*SC-SM, CL, SM	*A-4, A-6	0	0	100	100	85-98	41-54	17-31	2-12
	12-70	*Sandy clay	*CH, SC	*A-7-6,	0	0	100	100	77-92	48-63	45-62	25-36
	70-80	*Sandy clay loam, Sandy clay	*CL, CH, SC	*A-7-6,	0	0	100	100	82-97	49-64	41-57	21-33
PIT: Pits, quarry	---	---	---	---	---	---	---	---	---	---	---	---
PnC: Point Isabel	0-8	*Clay loam	*CL, CH	*A-7-6, A-6	0	0	100	100	87-97	67-77	40-51	21-29
	8-37	*Clay, Silty clay loam, clay loam	*CH, CL	*A-7-6,	0	0	100	100	85-100	68-88	46-65	25-40
	37-80	*Clay, Clay loam	*CH, CL	*A-7-6,	0	0	100	100	85-100	68-88	45-65	25-40
PoB: Portalto	0-8	*Fine sand, Loamy fine sand	*SP-SM, SC	*A-2-4, A-3	0	0	100	100	93-100	10-22	0-27	NP-8
	8-58	*Fine sand, Loamy fine sand	*SP-SM, SC	*A-2-4, A-3	0	0	100	100	93-100	10-22	0-27	NP-8
	58-80	*Sandy clay loam, Sandy clay loam, loamy fine sand	*SC, CL, SC-SM	*A-6, A-7-6, A-2-4	0	0	100	100	74-97	32-55	23-46	7-24

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Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
PrC: Potrero	In											
	0-10	*Fine sand, Loamy fine sand	*SP-SM, SC-SM	*A-3, A-2-4	0	0	100	100	94-100	10-19	0-23	NP-6
	10-30	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-20	0-23	NP-7
	30-35	*Loamy fine sand, Fine sand	*SC-SM, SC, SM	*A-2-4,	0	0	100	100	88-98	19-29	0-26	NP-8
	35-42	*Loamy fine sand, Fine sandy loam, sandy clay loam	*SC, SC-SM, SM	*A-2-4, A-2-6, A-4, A-6	0	0	100	100	90-100	22-38	18-34	3-16
	42-80	*Fine sandy loam, Sandy clay loam, loamy fine sand	*SC, SC-SM, SM	*A-2-4, A-2-6, A-4, A-6	0	0	100	100	84-100	20-36	18-34	3-16
Lopeno	0-5	*Fine sand, Loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	91-100	9-20	0-25	NP-7
	5-41	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-19	0-23	NP-6
	41-65	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-20	0-22	NP-6
	65-69	*Fine sand, Loamy fine sand	*SM, SC	*A-2-4, A-3	0	0	100	100	91-100	14-24	0-26	NP-8
	69-80	*Loamy fine sand, Fine sand, fine sandy loam, sandy clay loam	*SC, SM	*A-2-4, A-2-6, A-4, A-6	0	0	100	100	89-100	18-34	18-34	3-16
Noria	0-3	*Fine sand, Loamy fine sand	*SP-SM, SC	*A-2-4, A-3	0	0	100	100	91-100	10-22	0-27	NP-8
	3-39	*Fine sand, Loamy fine sand	*SP-SM, SC	*A-2-4, A-3	0	0	100	100	91-100	10-22	0-27	NP-8
	39-80	*Loamy fine sand, Fine sandy loam, sandy clay loam, fine sand	*SC-SM, SM, SC	*A-2-4, A-2-6	0	0	100	100	92-100	23-34	18-29	3-12
PtB: Premont	0-8	*Fine sandy loam	*SC, SM	*A-4, A-6	0	0	100	100	87-100	36-49	18-33	3-13
	8-37	*Sandy clay loam, Clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	81-91	45-55	35-47	17-25
	37-80	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6, A-7-6	0	0	100	100	81-93	46-58	33-47	16-25

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
QuA: Quiteria	0-11	*Fine sand, Loamy fine sand	*SP-SM, SM	*A-2-4, A-3	0	0	100	100	91-96	9-15	0-21	NP-3
	11-34	*Fine sandy loam, Loamy fine sand, sandy clay loam	*SC, SC-SM	*A-6, A-4	0	0	100	100	84-94	36-46	19-30	4-12
	34-80	*Sandy clay loam, Fine sandy loam	*CL, SC-SM	*A-6, A-2-4	0	0	100	100	71-91	33-53	19-38	4-19
RaB: Ramita	0-15	*Fine sand, Loamy fine sand	*SM, SC-SM	*A-2-4, A-4	0	0	100	100	94-100	33-41	0-24	NP-6
	15-22	*Fine sandy loam, Sandy clay loam	*SC, CL	*A-6, A-4	0	0	100	100	92-100	44-54	28-39	10-18
	22-55	*Sandy clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	83-91	45-53	31-41	13-20
	55-80	*Sandy clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	75-90	41-56	31-47	13-25
RbB: Ramita	0-15	*Loamy fine sand, Fine sand	*SM, SC-SM	*A-2-4, A-4	0	0	100	100	94-100	33-41	0-24	NP-6
	15-22	*Fine sandy loam, Sandy clay loam	*SC, CL	*A-6, A-4	0	0	100	100	92-100	44-54	28-39	10-18
	22-55	*Sandy clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	83-91	45-53	31-41	13-20
	55-80	*Sandy clay loam	*CL, SC	*A-7-6, A-6	0	0	100	100	75-90	41-56	31-47	13-25
Bordas	0-11	*Loamy fine sand, Fine sandy loam, fine sand	*SM, SC	*A-2-4, A-4	0	0	100	100	94-100	34-47	0-29	NP-10
	11-18	*Sandy clay loam, Fine sandy loam	*CL, SC	*A-6,	0	0	100	100	81-98	43-60	30-47	12-25
	18-70	*Sandy clay loam	*CL, SC	*A-6, A-7-6	0	0	100	100	82-95	45-58	33-47	15-25
	70-80	*Sandy clay loam	*CL,	*A-7-6,	0	0	100	100	77-90	42-55	33-48	15-25
RoB: Rockport	0-18	*Fine sand	*SM, SP-SM, SC-SM	*A-2-4, A-3	0	0	100	97-100	88-97	10-16	0-21	NP-4
	18-80	*Fine sand, Sand	*SM, SP-SM, SC-SM	*A-2-4, A-3	0	0	100	97-100	88-97	10-16	0-21	NP-4
SA: Salt flats, very frequently flooded	---	---	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
SF: Salt flats, ponded	In											
	---	---	---	---	---	---	---	---	---	---	---	---
SnC: Sarita	0-64	*Fine sand, Loamy fine sand	*SP-SM, SC	*A-2-4, A-3	0	0	100	100	93-100	10-22	0-27	NP-8
	64-80	*Fine sandy loam, Sandy clay loam, loamy fine sand	*SC, CL, SC-SM	*A-4, A-7-6	0	0	100	100	91-100	42-65	23-46	7-24
SrC: Sarita	0-64	*Fine sand, Loamy fine sand	*SP-SM, SC	*A-2-4, A-3	0	0	100	100	93-100	10-22	0-27	NP-8
	64-80	*Fine sandy loam, Sandy clay loam, loamy fine sand	*SC, CL, SC-SM	*A-4, A-7-6	0	0	100	100	91-100	42-65	23-46	7-24
Cayo	0-19	*Fine sandy loam, Loam	*SC, SC-SM	*A-6, A-4	0	0	100	100	87-94	39-46	22-33	6-12
	19-41	*Fine sandy loam, Sandy clay loam, loam	*SC, CL, SC-SM	*A-6, A-4	0	0	100	100	88-99	40-51	21-34	6-15
	41-60	*Fine sandy loam, Loam, sandy clay loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	88-95	39-46	21-30	6-12
	60-80	*Fine sandy loam, Loam, sandy clay loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	88-95	39-46	21-30	6-12
SsC: Sarita	0-64	*Fine sand, Loamy fine sand	*SP-SM, SC	*A-2-4, A-3	0	0	100	100	93-100	10-22	0-27	NP-8
	64-80	*Fine sandy loam, Sandy clay loam, loamy fine sand	*SC, CL, SC-SM	*A-4, A-7-6	0	0	100	100	91-100	42-65	23-46	7-24
Topo	0-10	*Fine sandy loam, Sandy loam	*SC, SC-SM	*A-4,	0	0	100	100	87-94	37-44	19-29	4-10
	10-51	*Fine sandy loam, Sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	86-95	37-46	18-29	4-11
	51-80	*Fine sandy loam, Sandy clay loam, sandy loam	*SC, CL, SC-SM	*A-4, A-6	0	0	100	100	89-100	39-59	20-40	6-21

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
				Pct	Pct					Pct		
StA: Satatton	0-17	*Fine sand	*SC-SM, SM	*A-2-4,	0	0	100	100	90-98	15-23	15-25	1-7
	17-80	*Fine sand	*SC-SM, SM	*A-2-4,	0	0	100	100	91-99	14-22	15-25	1-7
SuA: Sauce1	0-4	*Fine sandy loam	*SC-SM, SM, SC	*A-4, A-6	0	0	100	100	85-98	37-50	16-30	1-11
	4-44 44-80	*Fine sandy loam *Fine sandy loam, Loamy sand, sandy clay loam	*SC, SC-SM *SC, CL, SM	*A-4, A-6 *A-6, A-4, A-2-4	0 0	0 0	100 100	100 100	89-96 81-100	39-46 32-56	21-30 17-40	6-11 2-20
SxB: Sauce1	0-4	*Fine sandy loam	*SC-SM, SM, SC	*A-4, A-6	0	0	100	100	85-98	37-50	16-30	1-11
	4-44 44-80	*Fine sandy loam *Fine sandy loam, Loamy sand, sandy clay loam	*SC, SC-SM *SC, CL, SM	*A-4, A-6 *A-6, A-4, A-2-4	0 0	0 0	100 100	100 100	89-96 81-100	39-46 32-56	21-30 17-40	6-11 2-20
Potrero	0-10	*Fine sand, Loamy fine sand	*SP-SM, SC-SM	*A-3, A-2-4	0	0	100	100	94-100	10-19	0-23	NP-6
	10-30	*Fine sand, Fine sandy loam, loamy fine sand	*SP-SM, SC-SM	*A-2-4, A-3	0	0	100	100	93-100	10-20	0-23	NP-7
	30-35	*Loamy fine sand, Fine sand	*SC-SM, SC, SM	*A-2-4,	0	0	100	100	88-98	19-29	0-26	NP-8
	35-42	*Loamy fine sand, Fine sandy loam, sandy clay loam	*SC, SC-SM, SM	*A-2-4, A-2-6, A-4, A-6	0	0	100	100	90-100	22-38	18-34	3-16
	42-80	*Fine sandy loam, Loamy fine sand, sandy clay loam	*SC, SC-SM, SM	*A-2-4, A-2-6, A-4, A-6	0	0	100	100	84-100	20-36	18-34	3-16
SyA: Sauz	0-7	*Loamy fine sand	*SM, SC-SM	*A-2-4,	0	0	100	100	91-96	26-31	0-22	NP-4
	7-13	*Fine sandy loam, Sandy loam, sandy clay loam	*SC, SC-SM	*A-2-4, A-6	0	0	100	100	84-98	22-36	19-34	4-15
	13-24	*Fine sandy loam, Sandy loam, sandy clay loam	*SC, SC-SM	*A-2-6, A-6, A-2-4	0	0	100	100	84-99	25-40	20-37	6-17
	24-55	*Fine sandy loam, Sandy loam, sandy clay loam	*SC, SC-SM	*A-2-4, A-6	0	0	100	100	91-100	28-38	20-33	6-13
	55-80	*Fine sandy loam, Sandy loam, sandy clay loam	*SC, SC-SM	*A-2-6, A-6, A-2-4	0	0	100	100	85-97	26-38	20-34	6-15

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
SzA: Sauz	0-7	*Loamy fine sand	*SM, SC-SM	*A-2-4,	0	0	100	100	91-96	26-31	0-22	NP-4
	7-13	*Fine sandy loam, Sandy loam, sandy clay loam	*SC, SC-SM	*A-2-4, A-6	0	0	100	100	84-98	22-36	19-34	4-15
	13-24	*Fine sandy loam, Sandy loam, sandy clay loam	*SC, SC-SM	*A-2-6, A-6, A-2-4	0	0	100	100	84-99	25-40	20-37	6-17
	24-55	*Fine sandy loam, Sandy loam, sandy clay loam	*SC, SC-SM	*A-2-4, A-6	0	0	100	100	91-100	28-38	20-33	6-13
	55-80	*Fine sandy loam, Sandy loam, sandy clay loam	*SC, SC-SM	*A-2-6, A-6, A-2-4	0	0	100	100	85-97	26-38	20-34	6-15
Sauce1	0-4	*Fine sandy loam	*SC-SM, SM, SC	*A-4, A-6	0	0	100	100	85-98	37-50	16-30	1-11
	4-44	*Fine sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	89-96	39-46	21-30	6-11
	44-80	*Fine sandy loam, Sandy clay loam, loamy sand	*SC, CL, SM	*A-6, A-4, A-2-4	0	0	100	100	81-100	32-56	17-40	2-20
TaA: Tatton	0-4	*Fine sand, Loamy sand	*SM, SC-SM	*A-2-4,	0	0	100	100	75-85	18-28	0-25	NP-7
	4-12	*Loamy fine sand, Loamy sand	*SC-SM, SM	*A-2-4,	0	0	100	100	89-99	22-32	0-24	NP-7
	12-80	*Loamy fine sand, Loamy sand	*SC-SM, SM	*A-2-4,	0	0	100	100	89-99	22-32	0-24	NP-7
TBA: Tatton	0-11	*Fine sand	*SM, SC-SM	*A-2-4,	0	0	100	100	91-99	14-22	16-25	1-7
	11-80	*Fine sand, Loamy fine sand	*SC-SM, SM	*A-2-4,	0	0	100	100	76-84	14-22	15-24	1-7
Beaches, washover fan	0-80	*Fine sand	*SM,	*A-2-4, A-3	0	0-1	87-100	70-100	63-99	9-23	0-25	NP-7
ToA: Topo	0-10	*Fine sandy loam, Sandy loam	*SC, SC-SM	*A-4,	0	0	100	100	87-94	37-44	19-29	4-10
	10-51	*Fine sandy loam, Sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	86-95	37-46	18-29	4-11
	51-80	*Fine sandy loam, Sandy loam, sandy clay loam	*SC, CL, SC-SM	*A-4, A-6	0	0	100	100	89-100	39-59	20-40	6-21

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
TsA: Topo	0-10	*Fine sandy loam, Sandy loam	*SC, SC-SM	*A-4,	0	0	100	100	87-94	37-44	19-29	4-10
	10-51	*Fine sandy loam, Sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	86-95	37-46	18-29	4-11
	51-80	*Fine sandy loam, Sandy clay loam, sandy loam	*SC, CL, SC-SM	*A-4, A-6	0	0	100	100	89-100	39-59	20-40	6-21
Sauce1	0-4	*Fine sandy loam	*SC-SM, SM, SC	*A-4, A-6	0	0	100	100	85-98	37-50	16-30	1-11
	4-44	*Fine sandy loam	*SC, SC-SM	*A-4, A-6	0	0	100	100	89-96	39-46	21-30	6-11
	44-80	*Fine sandy loam, Sandy clay loam, loamy sand	*SC, CL, SM	*A-6, A-4, A-2-4	0	0	100	100	81-100	32-56	17-40	2-20
TwA: Twinpalms	0-18	*Fine sand	*SP-SM, SC-SM	*A-2-4,	0	0	100	78-98	73-98	10-19	15-23	1-6
	18-30	*Fine sandy loam, Gravelly fine sandy loam, loamy fine sand, gravelly loamy fine sand	*SC, SM	*A-2-6, A-6, A-2-4	0	0	100	68-98	54-92	17-38	16-30	2-13
	30-80	*Gravelly fine sand, Fine sand, loamy fine sand, gravelly loamy fine sand, gravelly fine sandy loam, fine sandy loam	*SC-SM, SP-SM, SC	*A-2-4, A-2-6	0	0	100	56-98	52-98	10-29	16-29	2-12
Yarborough	0-7	*Fine sandy loam	*SC, SM	*A-2-4, A-2-6	0	0	85-98	84-98	69-92	19-33	19-31	3-12
	7-80	*Fine sandy loam, Gravelly loamy fine sand, gravelly fine sandy loam, loamy fine sand	*SC, SM	*A-2-6, A-2-4	0	0	72-95	71-95	57-89	17-35	17-30	2-12
VaA: Victine	0-6	*Clay loam	*MH, CH	*A-7-5, A-7-6	0	0	100	100	98-100	74-89	50-72	22-34
	6-24	*Clay, Silty clay	*MH, CH	*A-7-5,	0	0	100	100	90-100	72-92	63-85	31-46
	24-45	*Clay, Silty clay	*CH, MH	*A-7-5,	0	0	100	100	91-100	74-94	62-82	31-44
	45-80	*Clay, Silty clay	*MH, CH	*A-7-5,	0	0	100	100	93-100	80-100	62-83	31-44

Table 25.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
VcA: Victoria	0-12	*Clay	*CH, MH	*A-7-5, A-7-6	0	0	100	100	85-100	72-87	53-80	29-42
	12-31	*Clay, Silty clay	*CH,	*A-7-5, A-7-6	0	0	100	100	88-100	77-92	57-82	33-46
	31-50	*Clay, Silty clay	*CH,	*A-7-5, A-7-6	0	0	100	100	88-100	77-92	57-82	33-46
	50-80	*Clay, Silty clay	*CH,	A-7-5, A-7-6	0	0	100	100	82-100	71-91	51-79	29-46
VcB: Victoria	0-12	*Clay	*CH, MH	*A-7-5, A-7-6	0	0	100	100	85-100	72-87	53-80	29-42
	12-31	*Clay, Silty clay	*CH,	*A-7-5, A-7-6	0	0	100	100	88-100	77-92	57-82	33-46
	31-50	*Clay, Silty clay	*CH,	*A-7-5, A-7-6	0	0	100	100	88-100	77-92	57-82	33-46
	50-80	*Clay, Silty clay	*CH,	A-7-5, A-7-6	0	0	100	100	82-100	71-91	51-79	29-46
W: Water	---	---	---	---	---	---	---	---	---	---	---	---
YaA: Yarborough	0-8	*Fine sandy loam	*SC, SM	*A-2-4, A-2-6	0	0	85-98	84-98	69-92	19-33	19-30	3-12
	8-80	*Fine sandy loam, Gravelly fine sandy loam, gravelly loamy fine sand, loamy fine sand	*SC, SM	*A-2-6, A-2-4	0	0	72-95	71-95	57-89	17-35	17-29	2-12
YtC: Yturria	0-26	*Fine sandy loam	*SC-SM, SC, SM	*A-2-4, A-6	0	0	100	100	85-97	24-36	18-33	2-11
	26-80	*Fine sandy loam	*SC-SM, SC	*A-2-4, A-2-6	0	0	100	100	95-100	24-35	19-31	4-13

Table 26.--Physical Soil Properties

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
AaA: Aransas	0-22	---	---	35-60	1.31-1.48	0.00-0.06	0.12-0.18	6.0-8.9	1.0-4.0	.32	.32	5	4	86
	22-80	---	---	35-60	1.40-1.56	0.00-0.06	0.12-0.18	6.0-8.9	0.5-2.0	.32	.32			
AcC: Arenisco	0-7	70-100	---	1-6	1.40-1.65	6-20	0.02-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	7-80	70-100	---	1-6	1.35-1.65	7-14	0.02-0.08	0.0-1.5	0.1-0.3	.15	.15			
AnC: Arenisco	0-7	70-100	---	1-6	1.40-1.65	6-20	0.02-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	7-80	70-100	---	1-6	1.35-1.65	7-14	0.02-0.08	0.0-1.5	0.1-0.3	.15	.15			
Topo	0-10	---	---	8-15	1.45-1.70	2-6	0.05-0.11	0.0-2.9	0.4-1.4	.24	.24	2	3	86
	10-51	---	---	8-17	1.45-1.70	2-6	0.01-0.11	0.0-2.9	0.0-0.5	.24	.24			
	51-80	---	---	10-30	1.50-1.75	2-6	0.01-0.08	0.0-2.9	0.0-0.3	.24	.24			
ArA: Arrada	0-16	---	---	10-30	1.35-1.55	0.2-0.6	0.00-0.01	0.0-2.9	0.0-0.2	.37	.37	5	8	0
	16-54	---	---	17-35	1.45-1.75	0.2-0.6	0.00-0.01	0.0-2.9	0.0-0.0	.43	.43			
	54-80	---	---	8-35	1.45-1.75	0.2-0.6	0.00-0.01	0.0-2.9	0.0-0.0	.43	.43			
AsC: Arrada	0-16	---	---	10-30	1.35-1.55	0.2-0.6	0.00-0.01	0.0-2.9	0.0-0.2	.37	.37	5	8	0
	16-54	---	---	17-35	1.45-1.75	0.2-0.6	0.00-0.01	0.0-2.9	0.0-0.0	.43	.43			
	54-80	---	---	8-35	1.45-1.75	0.2-0.6	0.00-0.01	0.0-2.9	0.0-0.0	.43	.43			
LaLinda	0-10	---	---	15-30	1.40-1.65	0.6-2	0.10-0.20	0.0-2.9	1.0-3.0	.32	.32	5	3	86
	10-65	---	---	18-35	1.35-1.65	0.2-0.6	0.11-0.19	0.0-2.9	0.2-1.0	.32	.32			
	65-80	---	---	15-40	1.40-1.65	0.2-0.6	0.00-0.05	3.0-5.9	0.0-0.3	.32	.32			
BA: Baffin	0-2	55-75	5-20	2-30	1.20-1.50	0.6-2	0.10-0.15	0.0-1.5	0.5-1.0	.37	.37	5	8	0
	2-8	60-85	2-20	8-20	1.30-1.60	0.2-0.6	0.08-0.15	1.0-1.8	0.1-0.5	.37	.37			
	8-80	65-90	2-12	8-28	1.30-1.60	0.2-0.6	0.06-0.15	0.0-1.5	0.1-0.5	.37	.37			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
BbA: Banquete	0-6	35-53	12-25	28-50	1.21-1.40	0.06-0.2	0.10-0.18	6.1-11.3	1.0-2.2	.32	.32	5	4	86
	6-21	27-47	15-27	38-60	1.12-1.36	0.06-0.2	0.09-0.17	8.4-18.6	1.0-2.0	.32	.32			
	21-44	27-47	15-27	38-60	1.12-1.36	0.06-0.2	0.09-0.17	8.4-18.6	1.0-2.0	.32	.32			
	44-56	27-47	15-27	38-60	1.12-1.36	0.06-0.2	0.09-0.17	8.4-18.6	1.0-2.0	.32	.32			
	56-80	85-95	2-12	3-8	1.50-1.65	6-20	0.07-0.09	0.0-2.9	0.1-1.0	.28	.28			
BdA: Barrada	0-52	---	---	45-60	1.20-1.50	0.00-0.06	0.00-0.01	6.0-8.9	0.1-0.5	.32	.32	5	8	0
	52-80	---	---	30-55	1.25-1.55	0.00-0.06	0.00-0.01	3.0-5.9	0.1-0.3	.32	.32			
BE1: Beaches	0-7	95-99	0-3	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.7	0.0-0.5	.15	.15	-	---	---
	7-80	95-99	0-3	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.7	0.0-0.5	.15	.15			
BE2: Beaches	0-7	95-99	0-3	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.7	0.0-0.5	.15	.15	-	---	---
	7-80	95-99	0-3	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.7	0.0-0.5	.15	.15			
BE3: Beaches	0-7	95-99	0-3	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.7	0.0-0.5	.15	.15	-	---	---
	7-80	95-99	0-3	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.7	0.0-0.5	.15	.15			
BE4: Beaches	0-7	95-99	0-3	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.7	0.0-0.5	.15	.15	-	---	---
	7-80	95-99	0-3	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.7	0.0-0.5	.15	.15			
BrA: Bordas	0-11	---	---	3-16	1.40-1.60	2-6	0.11-0.15	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	11-18	---	---	18-35	1.40-1.60	0.2-0.6	0.14-0.18	4.0-6.0	0.1-1.0	.32	.32			
	18-70	---	---	22-35	1.45-1.65	0.2-0.6	0.12-0.18	4.0-6.0	0.1-1.0	.32	.32			
	70-80	---	---	22-35	1.45-1.65	0.2-0.6	0.12-0.18	4.0-6.5	0.1-1.0	.32	.32			
CaA: CaAllen	0-8	---	---	17-27	1.40-1.60	0.6-2	0.10-0.16	0.0-2.9	0.5-1.0	.28	.28	5	5	56
	8-38	---	---	28-35	1.35-1.55	0.6-2	0.10-0.17	3.0-5.9	0.5-1.0	.32	.32			
	38-80	---	---	20-35	1.35-1.55	0.6-2	0.09-0.17	3.0-5.9	0.1-0.5	.32	.32			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
CeA: Carreta	0-7	---	---	25-35	1.30-1.50	0.6-2	0.05-0.10	3.0-5.9	1.0-3.0	.17	.17	2	5	56
	7-21	---	---	35-60	1.20-1.40	0.06-0.2	0.04-0.06	6.0-13.0	0.5-2.5	.17	.17			
	21-38	---	---	35-55	1.20-1.40	0.06-0.2	0.08-0.16	6.0-13.0	0.5-2.0	.20	.20			
	38-80	---	---	35-55	1.30-1.40	0.06-0.2	0.10-0.15	6.0-13.0	0.5-1.0	.24	.24			
ChA: Cayo	0-19	---	---	11-18	1.40-1.75	2-6	0.11-0.18	0.0-2.9	0.5-1.8	.24	.24	5	3	86
	19-41	---	---	11-22	1.40-1.75	2-6	0.01-0.13	0.0-2.9	0.1-0.8	.24	.24			
	41-60	---	---	11-18	1.40-1.75	2-6	0.01-0.09	0.0-2.9	0.1-0.5	.24	.24			
	60-80	---	---	11-18	1.40-1.75	2-6	0.01-0.09	0.0-2.9	0.1-0.5	.24	.24			
CkA: Clareville	0-11	---	---	25-35	1.35-1.55	0.6-2	0.12-0.20	3.0-5.9	1.0-3.0	.32	.32	5	6	48
	11-25	---	---	35-45	1.35-1.55	0.2-0.6	0.15-0.20	6.0-8.9	1.0-3.0	.32	.32			
	25-46	---	---	35-45	1.40-1.60	0.2-0.6	0.15-0.20	6.0-8.9	0.5-2.0	.32	.32			
	46-80	---	---	25-40	1.40-1.60	0.6-2	0.12-0.16	3.0-5.9	0.1-1.0	.32	.32			
CkB: Clareville	0-11	---	---	25-35	1.35-1.55	0.6-2	0.12-0.20	3.0-5.9	1.0-3.0	.32	.32	5	6	48
	11-25	---	---	35-45	1.35-1.55	0.2-0.6	0.15-0.20	6.0-8.9	1.0-3.0	.32	.32			
	25-46	---	---	35-45	1.40-1.60	0.2-0.6	0.15-0.20	6.0-8.9	0.5-2.0	.32	.32			
	46-80	---	---	25-40	1.40-1.60	0.6-2	0.12-0.16	3.0-5.9	0.1-1.0	.32	.32			
CmA: Colmena	0-11	---	---	8-20	1.30-1.55	2-6	0.11-0.16	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	11-39	---	---	22-35	1.30-1.60	0.6-2	0.14-0.20	3.0-5.9	0.5-1.0	.32	.32			
	39-80	---	---	22-35	1.30-1.60	0.6-2	0.14-0.20	3.0-5.9	0.5-1.0	.32	.32			
CmB: Colmena	0-11	---	---	8-20	1.30-1.55	2-6	0.11-0.16	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	11-39	---	---	22-35	1.30-1.60	0.6-2	0.14-0.20	3.0-5.9	0.5-1.0	.32	.32			
	39-80	---	---	22-35	1.30-1.60	0.6-2	0.14-0.20	3.0-5.9	0.5-1.0	.32	.32			
CnA: Crane11	0-10	---	---	20-35	1.30-1.40	0.2-0.6	0.15-0.20	3.0-5.9	1.0-3.0	.32	.32	5	5	56
	10-43	---	---	35-60	1.20-1.39	0.06-0.2	0.14-0.18	6.0-8.9	0.5-2.0	.32	.32			
	43-80	---	---	40-55	1.20-1.41	0.06-0.2	0.10-0.18	6.0-8.9	0.5-1.0	.32	.32			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
CnB: Cranel1	0-10	---	---	27-45	1.30-1.40	0.2-0.6	0.15-0.20	3.0-5.9	1.0-3.0	.32	.32	5	5	56
	10-43	---	---	35-60	1.20-1.39	0.06-0.2	0.14-0.18	6.0-8.9	0.5-2.0	.32	.32			
	43-80	---	---	40-55	1.20-1.41	0.06-0.2	0.10-0.18	6.0-8.9	0.5-1.0	.32	.32			
CrA: Czar	0-7	---	---	7-20	1.20-1.40	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	7-61	---	---	18-28	1.30-1.50	0.6-2	0.10-0.18	0.0-2.9	0.5-2.0	.32	.32			
	61-80	---	---	25-34	1.50-1.70	0.6-2	0.15-0.20	3.0-5.9	0.5-1.0	.32	.32			
CrB: Czar	0-7	---	---	7-20	1.20-1.40	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	7-61	---	---	18-28	1.30-1.50	0.6-2	0.10-0.18	0.0-2.9	0.5-2.0	.32	.32			
	61-80	---	---	25-34	1.50-1.70	0.6-2	0.15-0.20	3.0-5.9	0.5-1.0	.32	.32			
CzA: Czar	0-13	---	---	16-28	1.40-1.65	0.6-2	0.14-0.19	0.0-2.9	1.0-3.0	.28	.28	5	5	56
	13-49	---	---	26-34	1.45-1.70	0.6-2	0.15-0.20	3.0-5.9	1.0-2.0	.32	.32			
	49-80	---	---	25-34	1.50-1.70	0.6-2	0.15-0.20	3.0-5.9	0.5-1.0	.32	.32			
DaE: Daggerhill	0-18	95-99	0-3	1-3	1.45-1.65	6-20	0.02-0.08	0.0-1.5	0.5-1.0	.15	.15	5	1	250
	18-80	95-99	0-3	1-3	1.45-1.65	6-20	0.02-0.08	0.0-1.5	0.5-1.0	.15	.15			
DdE: Daggerhill	0-18	95-99	0-3	1-3	1.45-1.65	6-20	0.02-0.08	0.0-1.5	0.5-1.0	.15	.15	5	1	250
	18-80	95-99	0-3	1-3	1.45-1.65	6-20	0.02-0.08	0.0-1.5	0.5-1.0	.15	.15			
Mustang	0-11	95-99	0-5	0-5	1.40-1.60	6-20	0.01-0.07	0.0-1.5	0.1-1.0	.15	.15	5	1	250
	11-80	95-99	0-5	0-5	1.40-1.60	0.03-0.04	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
DeE: Daggerhill	0-18	95-99	0-3	1-3	1.45-1.65	6-20	0.02-0.08	0.0-1.5	0.5-1.0	.15	.15	5	1	250
	18-80	95-99	0-3	1-3	1.45-1.65	6-20	0.02-0.08	0.0-1.5	0.5-1.0	.15	.15			
Satatton	0-17	88-95	1-8	4-12	1.50-1.70	0.00-0.04	0.00-0.02	0.0-1.8	0.2-1.0	.15	.15	2	1	250
	17-80	88-95	1-8	4-12	1.50-1.70	0.00-0.04	0.00-0.02	0.0-1.8	0.2-1.0	.15	.15			
DfB: De1fina	0-15	---	---	7-20	1.50-1.70	2-6	0.11-0.15	0.0-2.9	0.1-1.0	.24	.24	5	3	86
	15-33	---	---	25-35	1.45-1.70	0.2-0.6	0.10-0.20	3.0-5.9	0.1-1.0	.32	.32			
	33-80	---	---	23-35	1.45-1.70	0.6-2	0.10-0.17	3.0-5.9	0.1-1.0	.32	.32			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
DnB: DeIrina	0-16	---	---	7-20	1.50-1.70	2-6	0.11-0.15	0.0-2.9	0.1-1.0	.24	.24	5	3	86
	16-34	---	---	25-35	1.45-1.70	0.2-0.6	0.10-0.20	3.0-5.9	0.1-1.0	.32	.32			
	34-80	---	---	23-35	1.45-1.70	0.6-2	0.10-0.17	3.0-5.9	0.1-1.0	.32	.32			
DrA: Dietrich	0-12	---	---	2-12	1.45-1.70	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.20	2	2	134
	12-45	---	---	25-35	1.55-1.70	0.06-0.2	0.08-0.15	3.0-5.9	0.3-0.5	.32	.32			
	45-80	---	---	20-35	1.50-1.70	0.2-0.6	0.05-0.15	3.0-5.9	0.1-0.5	.32	.32			
DsB: Dietrich	0-33	---	---	2-12	1.50-1.70	2-6	0.05-0.10	0.0-2.9	0.3-1.0	.17	.17	5	1	250
	33-38	---	---	18-35	1.35-1.70	0.2-0.6	0.12-0.17	0.0-2.9	0.3-1.0	.24	.24			
	38-80	---	---	18-35	1.56-1.74	0.2-0.3	0.13-0.17	0.0-2.9	0.1-1.0	.24	.24			
DTE: Dune land	0-80	90-99	0-9	0-1	1.40-1.60	6-20	0.03-0.05	0.0-2.9	0.0-0.1	.17	.17	-	---	---
DU: Dune land	0-80	90-99	0-9	0-1	1.40-1.60	6-20	0.03-0.05	0.0-2.9	0.0-0.1	.17	.17	-	---	---
DXC: Dune land	0-80	90-99	0-9	0-1	1.40-1.60	6-20	0.03-0.05	0.0-2.9	0.0-0.1	.17	.17	-	---	---
Satatton	0-17	88-95	1-8	4-12	1.50-1.70	0.00-0.04	0.00-0.02	0.0-1.8	0.2-1.0	.15	.15	5	1	250
	17-80	88-95	1-8	4-12	1.50-1.70	0.00-0.04	0.00-0.02	0.0-1.8	0.2-1.0	.15	.15			
EdA: Edroy	0-18	---	---	40-55	1.35-1.50	0.00-0.06	0.10-0.17	6.0-8.9	1.0-4.0	.32	.32	5	4	86
	18-57	---	---	35-50	1.35-1.55	0.06-0.2	0.09-0.17	6.0-8.9	1.0-3.0	.32	.32			
	57-70	---	---	20-35	1.35-1.65	0.06-0.2	0.08-0.16	3.0-5.9	0.5-2.0	.37	.37			
	70-80	---	---	5-40	1.30-1.65	0.2-2	0.05-0.15	0.0-2.9	0.5-2.0	.37	.37			
EsA: Estella	0-17	---	---	1-13	1.40-1.70	6-20	0.05-0.08	0.0-2.9	0.1-1.0	.15	.15	4	1	250
	17-57	---	---	1-13	1.40-1.70	6-20	0.05-0.08	0.0-2.9	0.1-1.0	.15	.15			
	57-80	---	---	12-34	1.35-1.65	2-6	0.13-0.19	3.0-5.9	0.1-0.1	.24	.24			
FaC: Falfurrias	0-21	89-97	1-2	1-9	1.45-1.65	6-20	0.02-0.08	0.0-2.9	0.3-1.0	.15	.15	5	1	250
	21-80	89-98	1-4	1-7	1.45-1.65	9-14	0.02-0.08	0.0-2.9	0.1-0.3	.15	.15			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
FaE: Falfurrias	0-15	---	---	1-9	1.45-1.65	6-20	0.02-0.08	0.0-2.9	0.3-1.0	.15	.15	5	1	250
	15-80	---	---	0-2	1.45-1.65	7-14	0.02-0.08	0.0-2.9	0.1-0.3	.15	.15			
FmC: Falfurrias	0-15	---	---	1-9	1.45-1.65	6-20	0.02-0.08	0.0-2.9	0.3-1.0	.15	.15	5	1	250
	15-80	---	1-1	1-9	1.45-1.65	7-14	0.02-0.08	0.0-2.9	0.1-0.3	.15	.15			
Atiras	0-17	---	---	2-8	1.30-1.70	6-20	0.05-0.08	0.0-2.9	0.1-1.0	.15	.15	4	1	250
	17-58	---	---	1-7	1.30-1.65	6-20	0.05-0.08	0.0-2.9	0.1-0.4	.15	.15			
	58-61	---	---	6-14	1.45-1.65	6-20	0.05-0.08	0.0-2.9	0.1-0.4	.15	.15			
	61-80	---	---	9-22	1.35-1.65	2-6	0.11-0.15	3.0-5.9	0.1-1.0	.15	.15			
Medanito	0-26	---	---	1-7	1.35-1.70	6-20	0.05-0.10	0.0-2.9	0.3-2.0	.15	.15	4	1	250
	26-32	---	---	1-6	1.35-1.70	6-20	0.05-0.10	0.0-2.9	0.1-0.5	.15	.15			
	32-36	---	---	10-14	1.35-1.65	6-20	0.05-0.10	0.0-2.9	0.3-0.5	.15	.15			
	36-42	---	---	10-25	1.40-1.65	6-20	0.08-0.11	2.0-4.0	0.1-0.5	.15	.15			
	42-61	---	---	10-25	1.45-1.65	2-6	0.12-0.17	2.0-4.0	0.1-0.3	.24	.24			
	61-80	---	---	10-20	1.40-1.60	2-6	0.12-0.17	2.0-4.0	0.1-0.3	.24	.24			
FoD: Falfurrias	0-15	---	---	1-9	1.45-1.65	6-20	0.02-0.08	0.0-2.9	0.3-1.0	.15	.15	5	1	250
	15-80	---	0-1	1-9	1.45-1.65	7-14	0.02-0.08	0.0-2.9	0.1-0.3	.15	.15			
Cayo	0-19	---	---	11-18	1.40-1.75	2-6	0.11-0.18	0.0-2.9	0.5-1.8	.24	.24	5	3	86
	19-41	---	---	11-22	1.40-1.75	2-6	0.01-0.13	0.0-2.9	0.1-0.8	.24	.24			
	41-60	---	---	11-18	1.40-1.75	2-6	0.01-0.09	0.0-2.9	0.1-0.5	.24	.24			
	60-80	---	---	11-18	1.40-1.75	2-6	0.01-0.09	0.0-2.9	0.1-0.5	.24	.24			
FtD: Falfurrias	0-15	---	---	1-9	1.45-1.65	6-20	0.02-0.08	0.0-2.9	0.3-1.0	.15	.15	5	1	250
	15-80	---	1-1	1-9	1.45-1.65	7-14	0.02-0.08	0.0-2.9	0.1-0.3	.15	.15			
Topo	0-10	---	---	8-15	1.45-1.70	2-6	0.05-0.11	0.0-2.9	0.4-1.4	.24	.24	2	3	86
	10-51	---	---	8-17	1.45-1.70	2-6	0.01-0.11	0.0-2.9	0.0-0.5	.24	.24			
	51-80	---	---	10-30	1.50-1.75	2-6	0.01-0.08	0.0-2.9	0.0-0.3	.24	.24			
GeB: Gertrudis	0-17	---	---	15-20	1.40-1.70	0.6-2	0.11-0.15	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	17-41	---	---	23-31	1.20-1.45	0.6-2	0.12-0.17	3.0-5.9	0.5-1.0	.32	.32			
	41-80	---	---	23-35	1.25-1.45	0.6-2	0.12-0.20	3.0-5.9	0.1-0.5	.32	.32			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
GhE: Greenhill	0-28	95-98	0-2	1-2	1.45-1.65	6-20	0.02-0.08	0.0-1.5	0.5-1.0	.15	.15	5	1	250
	28-80	95-98	0-2	1-2	1.45-1.65	6-20	0.02-0.08	0.0-1.5	0.5-1.0	.15	.15			
GmE: Greenhill	0-21	95-98	0-2	1-2	1.45-1.65	6-20	0.02-0.08	0.0-1.5	0.5-1.0	.15	.15	5	1	250
	21-80	95-98	0-2	1-2	1.45-1.65	6-20	0.02-0.08	0.0-1.5	0.5-1.0	.15	.15			
Mustang	0-19	95-99	0-5	0-5	1.40-1.60	6-20	0.01-0.07	0.0-1.5	0.1-1.0	.15	.15	5	1	250
	19-80	95-99	0-5	0-5	1.40-1.60	0.03-0.06	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
GRE: Riverwash	---	---	---	---	---	---	---	---	---	---	---	-	---	---
Gullied land	---	---	---	---	---	---	---	---	---	---	---	-	---	---
IcA: Incell	0-25	---	---	35-50	1.40-1.65	0.00-0.06	0.15-0.20	6.0-8.9	1.0-3.0	.32	.32	5	8	0
	25-60	---	---	18-35	1.45-1.70	0.00-0.06	0.15-0.20	3.0-5.9	0.5-1.5	.28	.28			
	60-80	---	---	18-35	1.45-1.70	0.00-0.06	0.12-0.16	3.0-5.9	0.1-1.0	.28	.28			
LaC: Lalinda	0-10	---	---	15-30	1.40-1.65	0.6-2	0.10-0.20	0.0-2.9	1.0-3.0	.32	.32	5	3	86
	10-65	---	---	18-35	1.35-1.65	0.2-0.6	0.11-0.19	0.0-2.9	0.2-1.0	.32	.32			
	65-80	---	---	15-40	1.40-1.65	0.2-0.6	0.00-0.05	3.0-5.9	0.0-0.3	.32	.32			
LpC: Lopeno	0-5	---	---	1-11	1.30-1.65	6-20	0.02-0.08	0.0-2.9	0.4-1.0	.15	.15	4	1	250
	5-41	---	---	1-10	1.40-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
	41-65	---	---	1-10	1.40-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.2	.24	.24			
	65-69	---	---	3-13	1.45-1.80	6-20	0.02-0.08	0.0-2.9	0.1-0.5	.15	.15			
	69-80	---	---	7-23	1.50-1.75	2-6	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
Potrero	0-10	---	---	1-10	1.30-1.65	6-20	0.02-0.08	0.0-2.9	0.1-0.5	.15	.15	5	1	250
	10-30	---	---	1-11	1.30-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
	30-35	---	---	3-13	1.30-1.70	6-20	0.02-0.08	0.0-2.9	0.1-0.5	.15	.15			
	35-42	---	---	7-23	1.50-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.5	.24	.24			
	42-80	---	---	7-23	1.50-1.75	2-6	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
Arenisco	0-7	70-100	---	1-6	1.40-1.65	6-20	0.02-0.08	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	7-80	70-100	---	1-6	1.35-1.65	7-14	0.02-0.08	0.0-1.5	0.1-0.3	.15	.15			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
LsC: Lopeno	0-5	---	---	1-11	1.30-1.65	6-20	0.02-0.08	0.0-2.9	0.4-1.0	.15	.15	4	1	250
	5-41	---	---	1-10	1.40-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
	41-65	---	---	1-10	1.40-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.2	.24	.24			
	65-69	---	---	3-13	1.45-1.80	6-20	0.02-0.08	0.0-2.9	0.1-0.5	.15	.15			
	69-80	---	---	7-23	1.50-1.75	2-6	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
Sauce1	0-4	---	---	4-17	1.40-1.70	0.6-2	0.00-0.05	0.0-2.9	0.5-1.0	.17	.17	2	8	0
	4-44	---	---	10-17	1.40-1.70	0.6-2	0.00-0.05	0.0-2.9	0.5-1.0	.17	.17			
	44-80	---	---	4-28	1.50-1.70	0.6-2	0.00-0.05	3.0-5.9	0.1-0.5	.17	.17			
LzC: Lopeno	0-5	---	---	1-11	1.30-1.65	6-20	0.02-0.08	0.0-2.9	0.4-1.0	.15	.15	4	1	250
	5-41	---	---	1-10	1.40-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
	41-65	---	---	1-10	1.40-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.2	.24	.24			
	65-69	---	---	3-13	1.45-1.80	6-20	0.02-0.08	0.0-2.9	0.1-0.5	.15	.15			
	69-80	---	---	7-23	1.50-1.75	2-6	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
Sauz	0-7	85-95	2-12	3-8	1.50-1.65	6-20	0.07-0.09	0.0-2.9	0.1-1.0	.28	.28	2	2	134
	7-13	70-85	2-22	8-22	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
	13-24	70-85	2-5	10-25	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
	24-55	70-85	2-10	10-20	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
	55-80	65-85	3-25	10-22	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
MaA: Madre	0-11	95-99	0-5	0-5	1.40-1.60	6-20	0.01-0.07	0.0-1.8	0.1-1.0	.15	.15	5	1	250
	11-41	95-99	0-5	0-5	1.40-1.60	0.00-0.04	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
	41-46	95-99	0-5	0-5	1.40-1.60	0.00-0.04	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
	46-80	95-99	0-5	0-5	1.40-1.60	0.00-0.04	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
Malaquite	0-5	93-99	0-7	0-7	1.40-1.60	0.00-0.04	0.01-0.04	0.0-1.6	0.1-1.0	.15	.15	5	1	250
	5-21	93-99	0-7	0-7	1.40-1.60	0.00-0.04	0.01-0.04	0.0-1.8	0.1-0.5	.15	.15			
	21-27	93-99	0-7	0-7	1.40-1.60	0.00-0.04	0.01-0.04	0.0-1.8	0.1-0.5	.15	.15			
	27-80	93-99	0-7	0-7	1.40-1.60	0.00-0.04	0.01-0.04	0.0-1.8	0.1-0.5	.15	.15			
MnB: Madre	0-8	95-99	0-5	0-5	1.40-1.60	6-20	0.01-0.07	0.0-1.5	0.1-1.0	.15	.15	5	1	250
	8-80	95-99	0-5	0-5	1.40-1.60	0.00-0.04	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
Panam	0-23	95-99	0-4	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.8	0.0-0.5	.15	.15	5	1	250
	23-38	95-99	0-4	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.8	0.0-0.5	.15	.15			
	38-80	95-99	0-4	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.8	0.0-0.5	.15	.15			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
MoA: Montealto	0-18	---	---	40-60	1.35-1.55	0.00-0.06	0.12-0.18	9.0-25.0	1.0-3.0	.32	.32	5	4	86
	18-47	---	---	45-60	1.35-1.60	0.00-0.06	0.09-0.15	9.0-25.0	0.1-1.0	.32	.32			
	47-80	---	---	40-60	1.40-1.70	0.00-0.06	0.06-0.20	9.0-25.0	0.1-1.0	.32	.32			
MsA: Mustang	0-19	95-99	0-5	0-5	1.40-1.60	6-20	0.01-0.07	0.0-1.8	0.1-1.0	.15	.15	5	1	250
	19-80	95-99	0-5	0-5	1.40-1.60	0.03-0.06	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
MtB: Mustang	0-19	95-99	0-4	0-4	1.40-1.60	6-20	0.01-0.07	0.0-1.8	0.1-1.0	.15	.15	5	1	250
	19-80	95-99	0-3	0-3	1.40-1.60	0.03-0.06	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
Padre	0-19	95-99	0-3	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.8	0.0-0.5	.15	.15	5	1	250
	19-28	95-99	0-3	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.8	0.0-0.5	.15	.15			
	28-80	95-99	0-3	1-3	1.50-1.70	0.00-0.04	0.05-0.10	0.0-1.8	0.0-0.5	.15	.15			
MuB: Mustang	0-11	95-99	0-5	0-5	1.40-1.60	6-20	0.01-0.07	0.0-1.8	0.1-1.0	.15	.15	5	1	250
	11-80	95-99	0-5	0-5	1.40-1.60	0.03-0.06	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
Panam	0-9	95-99	0-4	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.8	0.0-0.5	.15	.15	5	1	250
	9-36	95-99	0-4	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.8	0.0-0.5	.15	.15			
	36-80	95-99	0-4	1-3	1.50-1.70	6-20	0.05-0.10	0.0-1.8	0.0-0.5	.15	.15			
NaA: Narta	0-6	---	---	10-20	1.40-1.60	0.1-1	0.05-0.10	0.0-4.0	0.5-2.5	.37	.37	2	5	56
	6-20	---	---	35-45	1.30-1.65	0.00-0.1	0.00-0.02	6.0-15.0	0.2-1.0	.28	.28			
	20-49	---	---	30-45	1.35-1.60	0.00-0.1	0.00-0.02	6.0-15.0	0.2-0.8	.28	.28			
	49-80	---	---	22-45	1.40-1.60	0.00-0.1	0.00-0.02	6.0-15.0	0.1-0.5	.28	.28			
NeA: Novillo	0-2	95-99	0-3	0-3	0.20-1.00	14-86	0.15-0.45	---	70-95	---	---	5	1	250
	2-12	95-99	0-4	1-3	1.40-1.60	0.00-0.04	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
	12-80	95-99	0-4	1-3	1.40-1.60	0.00-0.04	0.01-0.06	0.0-1.8	0.1-0.5	.15	.15			
NfC: Nueces	0-33	---	---	2-12	1.50-1.70	2-6	0.05-0.10	0.0-2.9	0.3-1.0	.17	.17	5	1	250
	33-44	---	---	18-35	1.35-1.70	0.2-0.6	0.12-0.17	0.0-2.9	0.3-1.0	.24	.24			
	44-80	---	---	18-35	1.56-1.74	0.2-0.3	0.13-0.17	0.0-2.9	0.1-1.0	.24	.24			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
NsC: Nueces	0-33	---	---	2-12	1.50-1.70	2-6	0.05-0.10	0.0-2.9	0.3-1.0	.17	.17	5	1	250
	33-44	---	---	18-35	1.35-1.70	0.2-0.6	0.12-0.17	0.0-2.9	0.3-1.0	.24	.24			
	44-80	---	---	18-35	1.56-1.74	0.2-0.3	0.13-0.17	0.0-2.9	0.1-1.0	.24	.24			
Sarita	0-64	70-100	---	1-13	1.40-1.70	6-20	0.05-0.08	0.0-2.9	0.1-1.0	.17	.17	5	1	250
	64-80	50-70	---	11-34	1.35-1.70	2-6	0.13-0.19	3.0-5.9	0.1-1.0	.24	.24			
OfA: Orelia	0-10	65-76	8-13	10-23	1.40-1.60	0.6-2	0.10-0.16	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	10-15	40-70	5-25	25-37	1.35-1.55	0.06-0.2	0.12-0.18	3.0-6.5	0.5-1.5	.24	.24			
	15-30	40-70	5-27	25-33	1.35-1.65	0.06-0.2	0.12-0.17	3.0-5.9	0.5-1.0	.24	.24			
	30-80	40-70	5-27	23-33	1.35-1.55	0.06-0.2	0.12-0.17	3.0-5.9	0.1-0.5	.24	.24			
PaA: Padrones	0-26	---	---	0-10	1.30-1.70	2-6	0.03-0.10	0.0-2.9	0.4-1.0	.17	.17	3	1	250
	26-80	---	---	8-35	1.45-1.80	0.2-0.6	0.05-0.15	0.0-2.9	0.1-0.5	.24	.24			
PbA: Palobia	0-14	---	---	4-12	1.40-1.75	2-6	0.07-0.11	0.0-2.9	0.5-1.0	.17	.17	2	2	134
	14-31	---	---	18-35	1.45-1.80	0.2-0.6	0.04-0.12	3.0-5.9	0.1-1.0	.32	.32			
	31-80	---	---	18-35	1.45-1.70	0.6-2	0.04-0.11	3.0-5.9	0.1-1.0	.32	.32			
PbB: Palobia	0-14	---	---	4-12	1.40-1.75	2-6	0.07-0.11	0.0-2.9	0.5-1.0	.17	.17	2	2	134
	14-31	---	---	18-35	1.45-1.80	0.2-0.6	0.04-0.12	3.0-5.9	0.1-1.0	.32	.32			
	31-80	---	---	18-35	1.45-1.70	0.6-2	0.04-0.11	3.0-5.9	0.1-1.0	.32	.32			
PeB: Palobia	0-14	---	---	4-20	1.50-1.75	2-6	0.03-0.10	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	14-31	---	---	25-35	1.45-1.70	0.2-0.6	0.04-0.12	3.0-5.9	0.1-1.0	.32	.32			
	31-80	---	---	24-33	1.45-1.70	0.6-2	0.04-0.11	3.0-5.9	0.1-0.5	.32	.32			
PfA: Palobia	0-14	---	---	4-20	1.50-1.75	2-6	0.03-0.10	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	14-31	---	---	25-35	1.45-1.70	0.2-0.6	0.04-0.12	3.0-5.9	0.1-1.0	.32	.32			
	31-80	---	---	24-33	1.45-1.70	0.6-2	0.04-0.11	3.0-5.9	0.1-0.5	.32	.32			
Colmena	0-11	---	---	8-20	1.30-1.55	2-6	0.11-0.16	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	11-39	---	---	22-35	1.30-1.60	0.6-2	0.14-0.20	3.0-5.9	0.5-1.0	.32	.32			
	39-80	---	---	22-35	1.30-1.60	0.6-2	0.14-0.20	3.0-5.9	0.5-1.0	.32	.32			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
PFB: Palobia	0-14	---	---	4-20	1.50-1.75	2-6	0.03-0.10	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	14-31	---	---	25-35	1.45-1.70	0.2-0.6	0.04-0.12	3.0-5.9	0.1-1.0	.32	.32			
	31-80	---	---	24-33	1.45-1.70	0.6-2	0.04-0.11	3.0-5.9	0.1-0.5	.32	.32			
Colmena	0-11	---	---	8-20	1.30-1.55	2-6	0.11-0.16	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	11-39	---	---	22-35	1.30-1.60	0.6-2	0.14-0.20	3.0-5.9	0.5-1.0	.32	.32			
	39-80	---	---	22-35	1.30-1.60	0.6-2	0.14-0.20	3.0-5.9	0.5-1.0	.32	.32			
PgA: Papagua	0-12	---	---	5-18	1.40-1.60	2-6	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	12-70	---	---	35-50	1.40-1.60	0.06-0.2	0.14-0.18	6.0-8.9	0.1-1.0	.32	.32			
	70-80	---	---	30-45	1.45-1.65	0.06-0.6	0.12-0.18	6.0-8.9	0.1-1.0	.37	.37			
PIT: Pits, quarry	---	---	---	---	---	---	---	---	---	---	-	---	---	
PnC: Point Isabel	0-8	---	---	30-40	1.15-1.35	0.2-0.6	0.04-0.15	3.0-5.9	0.5-1.0	.32	.32	4	4L	86
	8-37	15-35	25-42	35-55	1.20-1.35	0.06-0.2	0.03-0.12	6.0-8.9	0.2-0.5	.32	.32			
	37-80	---	---	35-55	1.25-1.45	0.06-0.2	0.01-0.10	6.0-8.9	0.1-0.5	.32	.32			
PoB: Portalto	0-8	70-100	---	1-13	1.40-1.70	6-20	0.05-0.08	0.0-2.9	0.1-1.0	.17	.17	5	1	250
	8-58	70-100	---	1-13	1.40-1.70	6-20	0.05-0.08	0.0-2.9	0.1-1.0	.17	.17			
	58-80	50-70	---	11-34	1.35-1.70	0.6-2	0.13-0.19	3.0-5.9	0.1-1.0	.24	.24			
PrC: Potrero	0-10	---	---	1-10	1.30-1.65	6-20	0.02-0.08	0.0-2.9	0.1-0.5	.15	.15	5	1	250
	10-30	---	---	1-11	1.30-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
	30-35	---	---	3-13	1.30-1.70	6-20	0.02-0.08	0.0-2.9	0.1-0.5	.15	.15			
	35-42	---	---	7-23	1.50-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.5	.24	.24			
	42-80	---	---	7-23	1.50-1.75	2-6	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
Lopeno	0-5	---	---	1-11	1.30-1.65	6-20	0.02-0.08	0.0-2.9	0.4-1.0	.15	.15	4	1	250
	5-41	---	---	1-10	1.40-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
	41-65	---	---	1-10	1.40-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.2	.24	.24			
	65-69	---	---	3-13	1.45-1.80	6-20	0.02-0.08	0.0-2.9	0.1-0.5	.15	.15			
	69-80	---	---	7-23	1.50-1.75	2-6	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
Noria	0-3	---	---	1-13	1.35-1.65	6-20	0.01-0.06	0.0-2.9	0.1-1.1	.15	.15	5	1	250
	3-39	---	---	1-13	1.35-1.65	6-20	0.01-0.06	0.0-2.9	0.1-1.1	.15	.15			
	39-80	---	---	7-18	1.50-1.70	6-20	0.01-0.12	0.0-2.9	0.1-0.2	.24	.24			
PtB: Premont	0-8	---	---	7-20	1.50-1.70	2-6	0.11-0.15	0.0-2.9	0.1-1.0	.24	.24	5	3	86
	8-37	---	---	25-35	1.45-1.70	0.6-2	0.10-0.20	3.0-5.9	0.1-1.0	.32	.32			
	37-80	---	---	23-35	1.45-1.70	0.6-2	0.10-0.17	3.0-5.9	0.1-1.0	.32	.32			
QuA: Quiteria	0-11	---	---	1-6	1.30-1.70	2-6	0.03-0.10	0.0-2.9	0.1-1.0	.17	.17	2	1	250
	11-34	---	---	8-18	1.45-1.80	0.2-0.6	0.05-0.15	0.0-2.9	0.1-0.7	.24	.24			
	34-80	---	---	8-28	1.45-1.75	0.6-2	0.05-0.15	0.0-2.9	0.1-0.2	.24	.24			
RaB: Ramita	0-15	---	---	2-10	1.40-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.20	2	2	134
	15-22	---	---	16-26	1.55-1.75	0.2-0.6	0.08-0.15	3.0-5.9	0.3-0.7	.32	.32			
	22-55	---	---	20-28	1.50-1.75	0.2-0.6	0.05-0.15	3.0-5.9	0.1-0.7	.32	.32			
	55-80	---	---	20-35	1.50-1.70	0.2-0.6	0.05-0.15	3.0-5.9	0.1-0.7	.32	.32			
RbB: Ramita	0-15	---	---	2-10	1.40-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.20	2	2	134
	15-22	---	---	16-26	1.55-1.75	0.2-0.6	0.08-0.15	3.0-5.9	0.3-0.7	.32	.32			
	22-55	---	---	20-28	1.50-1.75	0.2-0.6	0.05-0.15	3.0-5.9	0.1-0.7	.32	.32			
	55-80	---	---	20-35	1.50-1.70	0.2-0.6	0.05-0.15	3.0-5.9	0.1-0.7	.32	.32			
Bordas	0-11	---	---	3-16	1.40-1.60	2-6	0.11-0.15	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	11-18	---	---	18-35	1.40-1.60	0.2-0.6	0.14-0.18	4.0-6.0	0.1-1.0	.32	.32			
	18-70	---	---	22-35	1.45-1.65	0.2-0.6	0.12-0.18	4.0-6.0	0.1-1.0	.32	.32			
	70-80	---	---	22-35	1.45-1.65	0.2-0.6	0.12-0.18	4.0-6.5	0.1-1.0	.32	.32			
RoB: Rockport	0-18	---	---	2-8	1.50-1.70	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15	5	1	250
	18-80	---	---	2-8	1.50-1.70	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15			
SA: Salt flats, very frequently flooded	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SF: Salt flats, ponded	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
SnC: Sarita	0-64	70-100	---	1-13	1.40-1.70	6-20	0.05-0.08	0.0-2.9	0.1-1.0	.17	.17	5	1	250
	64-80	50-70	---	11-34	1.35-1.70	0.6-2	0.13-0.19	3.0-5.9	0.1-1.0	.24	.24			
SrC: Sarita	0-64	70-100	---	1-13	1.40-1.70	6-20	0.05-0.08	0.0-2.9	0.1-1.0	.17	.17	5	1	250
	64-80	50-70	---	11-34	1.35-1.70	0.6-2	0.13-0.19	3.0-5.9	0.1-1.0	.24	.24			
Cayo	0-19	---	---	11-18	1.40-1.75	2-6	0.11-0.18	0.0-2.9	0.5-1.8	.24	.24	5	3	86
	19-41	---	---	11-22	1.40-1.75	2-6	0.01-0.13	0.0-2.9	0.1-0.8	.24	.24			
	41-60	---	---	11-18	1.40-1.75	2-6	0.01-0.09	0.0-2.9	0.1-0.5	.24	.24			
	60-80	---	---	11-18	1.40-1.75	2-6	0.01-0.09	0.0-2.9	0.1-0.5	.24	.24			
SsC: Sarita	0-64	70-100	---	1-13	1.40-1.70	6-20	0.05-0.08	0.0-2.9	0.1-1.0	.17	.17	5	1	250
	64-80	50-70	---	11-34	1.35-1.70	0.6-2	0.13-0.19	3.0-5.9	0.1-1.0	.24	.24			
Topo	0-10	---	---	8-15	1.45-1.70	2-6	0.05-0.11	0.0-2.9	0.4-1.4	.24	.24	2	3	86
	10-51	---	---	8-17	1.45-1.70	2-6	0.01-0.11	0.0-2.9	0.0-0.5	.24	.24			
	51-80	---	---	10-30	1.50-1.75	2-6	0.01-0.08	0.0-2.9	0.0-0.3	.24	.24			
StA: Satatton	0-17	88-95	1-8	4-12	1.50-1.70	6-20	0.00-0.02	0.0-1.8	0.2-1.0	.15	.15	2	1	250
	17-80	88-95	1-8	4-12	1.50-1.70	0.00-0.04	0.00-0.02	0.0-2.0	0.2-1.0	.15	.15			
SuA: Sauce1	0-4	---	---	4-17	1.40-1.70	0.6-2	0.00-0.05	0.0-2.9	0.5-1.0	.17	.17	2	8	0
	4-44	---	---	10-17	1.40-1.70	0.6-2	0.00-0.05	0.0-2.9	0.5-1.0	.17	.17			
	44-80	---	---	4-28	1.50-1.70	0.6-2	0.00-0.05	3.0-5.9	0.1-0.5	.17	.17			
SxB: Sauce1	0-4	---	---	4-17	1.40-1.70	0.6-2	0.00-0.05	0.0-2.9	0.5-1.0	.17	.17	2	8	0
	4-44	---	---	10-17	1.40-1.70	0.6-2	0.00-0.05	0.0-2.9	0.5-1.0	.17	.17			
	44-80	---	---	4-28	1.50-1.70	0.6-2	0.00-0.05	3.0-5.9	0.1-0.5	.17	.17			
Potrero	0-10	---	---	1-10	1.30-1.65	6-20	0.02-0.08	0.0-2.9	0.1-0.5	.15	.15	5	1	250
	10-30	---	---	1-11	1.30-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			
	30-35	---	---	3-13	1.30-1.70	6-20	0.02-0.08	0.0-2.9	0.1-0.5	.15	.15			
	35-42	---	---	7-23	1.50-1.75	6-20	0.11-0.17	0.0-2.9	0.1-0.5	.24	.24			
	42-80	---	---	7-23	1.50-1.75	2-6	0.11-0.17	0.0-2.9	0.1-0.3	.24	.24			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
SyA: Sauz	0-7	85-95	2-12	3-8	1.50-1.65	6-20	0.07-0.09	0.0-2.9	0.1-1.0	.28	.28	2	2	134
	7-13	70-85	2-22	8-22	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
	13-24	70-85	2-5	10-25	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
	24-55	70-85	2-10	10-20	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
	55-80	65-85	3-25	10-22	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
SZA: Sauz	0-7	85-95	2-12	3-8	1.50-1.65	6-20	0.07-0.09	0.0-2.9	0.1-1.0	.28	.28	2	2	134
	7-13	70-85	2-22	8-22	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
	13-24	70-85	2-5	10-25	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
	24-55	70-85	2-10	10-20	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
	55-80	65-85	3-25	10-22	1.50-1.70	0.2-0.6	0.07-0.12	0.0-2.9	0.1-1.0	.20	.20			
Sauce1	0-4	---	---	4-17	1.40-1.70	0.6-2	0.00-0.05	0.0-2.9	0.5-1.0	.17	.17	2	8	0
	4-44	---	---	10-17	1.40-1.70	0.6-2	0.00-0.05	0.0-2.9	0.5-1.0	.17	.17			
	44-80	---	---	4-28	1.50-1.70	0.6-2	0.00-0.05	3.0-5.9	0.1-0.5	.17	.17			
TaA: Tatton	0-4	---	---	2-12	1.50-1.70	6-20	0.03-0.10	0.0-1.8	0.3-1.0	.17	.20	2	2	134
	4-12	---	---	2-12	1.50-1.70	0.00-0.04	0.03-0.08	0.0-1.8	0.1-0.3	.15	.15			
	12-80	---	---	2-12	1.50-1.70	0.00-0.04	0.03-0.08	0.0-1.8	0.1-0.3	.15	.15			
TBA: Tatton	0-11	85-95	1-5	4-12	1.50-1.70	0.00-0.04	0.03-0.10	0.0-1.5	0.3-1.0	.17	.20	2	1	250
	11-80	85-95	1-5	4-12	1.50-1.70	0.00-0.03	0.03-0.08	0.0-1.8	0.1-0.3	.15	.15			
Beaches, washover fan	0-80	85-95	1-5	2-12	1.50-1.70	0.00-0.04	0.03-0.10	0.0-1.8	0.3-1.0	.17	.20	-	---	---
ToA: Topo	0-10	---	---	8-15	1.45-1.70	2-6	0.05-0.11	0.0-2.9	0.4-1.4	.24	.24	2	3	86
	10-51	---	---	8-17	1.45-1.70	2-6	0.01-0.11	0.0-2.9	0.0-0.5	.24	.24			
	51-80	---	---	10-30	1.50-1.75	2-6	0.01-0.08	0.0-2.9	0.0-0.3	.24	.24			
TsA: Topo	0-10	---	---	8-15	1.45-1.70	2-6	0.05-0.11	0.0-2.9	0.4-1.4	.24	.24	2	3	86
	10-51	---	---	8-17	1.45-1.70	2-6	0.01-0.11	0.0-2.9	0.0-0.5	.24	.24			
	51-80	---	---	10-30	1.50-1.75	2-6	0.01-0.08	0.0-2.9	0.0-0.3	.24	.24			
Sauce1	0-4	---	---	4-17	1.40-1.70	0.6-2	0.00-0.05	0.0-2.9	0.5-1.0	.17	.17	2	8	0
	4-44	---	---	10-17	1.40-1.70	0.6-2	0.00-0.05	0.0-2.9	0.5-1.0	.17	.17			
	44-80	---	---	4-28	1.50-1.70	0.6-2	0.00-0.05	3.0-5.9	0.1-0.5	.17	.17			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
Twa: Twinpalms	0-18	70-95	1-25	4-10	1.40-1.60	6-20	0.01-0.07	0.0-1.8	0.1-1.0	.15	.15	3	1	250
	18-30	70-81	1-25	5-19	1.30-1.55	6-20	0.02-0.06	0.0-1.8	0.1-0.5	.10	.20			
	30-80	70-90	1-25	5-10	1.30-1.55	1-2	0.02-0.06	0.0-1.8	0.1-0.5	.10	.20			
Yarborough	0-7	75-90	3-7	7-18	1.30-1.60	2-6	0.02-0.04	1.0-2.9	0.5-1.0	.17	.20	2	3	86
	7-80	70-90	5-12	5-18	1.30-1.60	2-6	0.02-0.04	1.0-2.9	0.1-0.5	.17	.24			
VaA: Victine	0-6	---	---	30-45	1.20-1.50	0.01-0.1	0.09-0.18	15.0-25.0	2.0-3.5	.20	.20	5	6	48
	6-24	---	---	40-60	1.25-1.45	0.01-0.1	0.08-0.18	25.0-30.0	1.0-2.0	.17	.17			
	24-45	---	---	40-60	1.25-1.45	0.01-0.1	0.02-0.15	25.0-30.0	0.5-1.0	.17	.17			
	45-80	---	---	40-60	1.30-1.50	0.01-0.1	0.02-0.15	25.0-30.0	0.5-2.0	.17	.17			
VcA: Victoria	0-12	---	---	40-55	1.20-1.45	0.00-0.06	0.09-0.18	9.0-25.0	1.0-3.0	.32	.32	5	4	86
	12-31	---	---	45-60	1.25-1.55	0.00-0.06	0.08-0.18	9.0-25.0	0.5-2.0	.32	.32			
	31-50	---	---	45-60	1.25-1.55	0.00-0.06	0.08-0.18	9.0-25.0	0.5-2.0	.32	.32			
	50-80	---	---	40-60	1.40-1.50	0.00-0.06	0.02-0.15	9.0-25.0	0.1-0.5	.32	.32			
VcB: Victoria	0-12	---	---	40-55	1.20-1.45	0.00-0.06	0.09-0.18	9.0-25.0	1.0-3.0	.32	.32	5	4	86
	12-31	---	---	45-60	1.25-1.55	0.00-0.06	0.08-0.18	9.0-25.0	0.5-2.0	.32	.32			
	31-50	---	---	45-60	1.25-1.55	0.00-0.06	0.08-0.18	9.0-25.0	0.5-2.0	.32	.32			
	50-80	---	---	40-60	1.40-1.70	0.00-0.06	0.02-0.15	9.0-25.0	0.1-0.5	.32	.32			
W: Water	---	---	---	---	---	---	---	---	---	---	-	---	---	
YaA: Yarborough	0-8	75-90	3-7	7-18	1.30-1.60	2-6	0.02-0.04	1.0-1.8	0.5-1.0	.17	.20	2	3	86
	8-80	70-90	5-12	5-18	1.30-1.60	2-6	0.02-0.04	1.0-1.8	0.1-0.5	.17	.24			
YtC: Yturria	0-26	---	---	5-17	1.30-1.40	2-6	0.11-0.15	0.0-2.9	1.0-2.3	.17	.17	5	3	86
	26-80	---	---	8-19	1.35-1.41	2-6	0.11-0.15	0.0-2.9	0.1-0.8	.17	.17			

Table 27.--Chemical Soil Properties

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
AaA: Aransas	0-22 22-80	27-45 26-44	--- ---	7.9-8.4 7.9-8.4	0-10 5-15	0 0-5	1.0-16.0 4.0-32.0	5-30 15-50
AcC: Arenisco	0-7 7-80	0.5-5.0 0.5-4.6	--- ---	6.1-7.8 6.1-7.8	0 0	0 0	0.1-2.0 0.1-2.0	0-5 0-5
AnC: Arenisco	0-7 7-80	0.5-5.0 0.5-4.6	--- ---	6.1-7.8 6.1-7.8	0 0	0 0	0.1-2.0 0.1-2.0	0-5 0-5
Topo	0-10 10-51 51-80	2.9-5.5 2.7-6.1 3.4-11	--- --- ---	7.9-9.5 7.9-9.5 7.9-9.0	2-10 2-10 1-5	0 0 0	2.0-8.0 2.0-16.0 4.0-16.0	10-40 20-60 10-40
ArA: Arrada	0-16 16-54 54-80	3.4-10 5.7-12 2.7-12	--- --- ---	7.9-9.0 7.9-9.0 7.9-9.0	0-10 0-10 0-10	0 0 0	30.0-99.0 30.0-99.0 30.0-99.0	30-99 30-99 30-99
AsC: Arrada	0-16 16-54 54-80	3.4-10 5.7-12 2.7-12	--- --- ---	7.9-9.0 7.9-9.0 7.9-9.0	0-10 0-10 0-10	0 0 0	30.0-99.0 30.0-99.0 30.0-99.0	30-99 30-99 30-99
Lalinda	0-10 10-65 65-80	8.1-16 9.4-19 7.6-21	--- --- ---	7.4-8.4 7.9-9.0 7.9-9.0	0-15 2-20 5-30	0 0 0	2.0-8.0 4.0-24.0 13.0-35.0	1-10 10-25 15-35
BA: Baffin	0-2 2-8 8-80	1.1-16 4.2-11 4.2-15	--- --- ---	7.4-8.4 7.4-8.4 6.6-8.4	0-15 0-15 0-15	0 0 0	40.0-50.0 40.0-50.0 35.0-85.0	35-70 35-70 45-75
BbA: Banquete	0-6 6-21 21-44 44-56 56-80	22-37 29-44 29-44 29-44 3.0-7.5	--- --- --- --- ---	5.6-7.3 6.1-7.8 6.1-7.8 6.1-7.8 6.6-7.8	0-3 0-15 0-15 0-15 0	0 0 0 0 0	0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0 2.0-4.0	0-2 0-2 0-2 0-2 15-20
BdA: Barrada	0-52 52-80	23-31 16-29	--- ---	7.9-9.0 7.9-9.0	0-10 0-10	0-5 0-5	30.0-99.0 30.0-99.0	30-99 30-99
BE1: Beaches	0-7 7-80	--- ---	--- ---	6.6-8.4 6.6-8.4	5-15 5-15	0 0	10.0-20.0 10.0-20.0	15-30 10-30
BE2: Beaches	0-7 7-80	--- ---	--- ---	6.6-8.4 6.6-8.4	5-15 5-15	0 0	10.0-20.0 10.0-20.0	15-30 15-30

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
BE3: Beaches	0-7	---	---	6.6-8.4	5-15	0	10.0-20.0	15-30
	7-80	---	---	6.6-8.4	5-15	0	10.0-20.0	15-30
BE4: Beaches	0-7	---	---	6.6-8.4	5-15	0	10.0-20.0	15-30
	7-80	---	---	6.6-8.4	5-15	0	10.0-20.0	15-30
BrA: Bordas	0-11	1.6-8.6	---	5.1-6.5	0	0	0.0-2.0	0-4
	11-18	9.3-19	---	5.1-8.4	0	0	0.0-2.0	0-8
	18-70	11-19	---	7.4-9.0	0-15	0	0.0-2.0	0-8
	70-80	11-19	---	7.4-9.0	0-2	0	0.0-2.0	0-8
CaA: Calallen	0-8	14-22	---	6.6-7.8	0	0	0.0-2.0	0-4
	8-38	22-28	---	6.6-7.8	0-5	0-2	0.0-4.0	0-4
	38-80	15-27	---	7.9-8.4	5-20	0-5	0.0-4.0	4-12
CeA: Carreta	0-7	20-28	---	6.6-8.4	0	0	0.5-35.0	6-25
	7-21	26-44	---	7.4-8.4	0-10	0-1	2.0-25.0	15-50
	21-38	26-39	---	7.4-8.4	1-10	0-3	5.0-30.0	15-55
	38-80	26-36	---	7.4-8.4	2-20	0-5	5.0-30.0	15-55
ChA: Cayo	0-19	4.0-6.6	---	7.9-9.0	0-15	0	0.0-4.0	0-3
	19-41	3.9-7.9	---	7.9-9.0	8-20	0	8.0-16.0	13-35
	41-60	3.9-6.4	---	7.9-9.0	1-10	0	16.0-32.0	15-50
	60-80	3.9-6.4	---	7.9-9.0	1-10	0	16.0-32.0	15-50
CkA: Clareville	0-11	20-28	---	6.6-7.8	0	0	0.0-3.0	0
	11-25	27-35	---	6.6-7.8	0	0	0.0-6.0	0
	25-46	26-34	---	7.9-8.4	5-30	0	0.0-6.0	0
	46-80	19-30	---	7.9-8.4	15-50	0	0.0-4.0	0-2
CkB: Clareville	0-11	20-28	---	6.6-7.8	0	0	0.0-2.0	0
	11-25	27-35	---	6.6-7.8	0	0	0.0-6.0	0
	25-46	26-34	---	7.9-8.4	5-30	0	0.0-6.0	0
	46-80	19-30	---	7.9-8.4	15-50	0	0.0-4.0	0-2
CmA: Colmena	0-11	7.3-17	---	6.6-7.8	0	0	0.0-2.0	0
	11-39	18-28	---	6.6-8.4	0-20	0	0.0-2.0	0
	39-80	18-28	---	6.6-8.4	0-20	0	0.0-2.0	0
CmB: Colmena	0-11	7.3-17	---	6.6-7.8	0	0	0.0-2.0	0
	11-39	18-28	---	6.6-8.4	0-20	0	0.0-2.0	0
	39-80	18-28	---	6.6-8.4	0-20	0	0.0-2.0	0
CnA: Cranell	0-10	17-28	---	7.9-8.4	0	0	0.0-2.0	0-5
	10-43	26-44	---	7.9-8.4	0-10	0-5	0.0-2.0	2-5
	43-80	15-35	---	7.9-8.4	2-20	0-10	2.0-8.0	4-20

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
CnB: Crane11	0-10	22-35	---	7.9-8.4	0	0	0.0-2.0	0-5
	10-43	26-44	---	7.9-8.4	0-10	0-5	0.0-2.0	2-5
	43-80	15-35	---	7.9-8.4	2-20	0-10	2.0-8.0	13-20
CrA: Czar	0-7	6.4-17	---	6.6-7.8	0	0	0.0-2.0	0
	7-61	15-23	---	7.4-7.8	0	0	0.0-2.0	0
	61-80	20-27	---	8.5-9.0	3-15	0	1.0-4.0	0-6
CrB: Czar	0-7	6.4-17	---	6.6-7.8	0	0	0.0-2.0	0
	7-61	15-23	---	7.4-7.8	0	0	0.0-2.0	0
	61-80	20-27	---	8.5-9.0	3-15	0	1.0-4.0	0-6
CzA: Czar	0-13	14-24	---	6.6-7.8	0-5	0	0.0-2.0	0-2
	13-49	21-28	---	6.6-8.4	0-5	0	1.0-4.0	0-4
	49-80	20-27	---	7.9-8.4	3-15	0	1.0-4.0	0-6
DaE: Daggerhill	0-18	1.0-2.7	---	6.6-9.0	1-10	0	0.0-2.0	0-8
	18-80	1.0-2.7	---	6.6-9.0	1-10	0	0.0-2.0	0-8
DdE: Daggerhill	0-18	1.0-2.7	---	6.6-9.0	1-10	0	0.0-2.0	0-8
	18-80	1.0-2.7	---	6.6-9.0	1-10	0	0.0-2.0	0-8
Mustang	0-11	0.1-4.2	---	6.6-9.0	1-5	0	0.0-4.0	0-10
	11-80	0.1-4.0	---	6.6-9.0	1-5	0	0.0-4.0	0-8
DeE: Daggerhill	0-18	1.0-2.7	---	6.6-9.0	1-10	0	0.0-2.0	0-8
	18-80	1.0-2.7	---	6.6-9.0	1-10	0	0.0-2.0	0-8
Satatton	0-17	3.1-9.1	---	6.6-9.0	5-15	0	60.0-175.0	60-125
	17-80	3.1-9.1	---	6.6-9.0	5-15	0-1	60.0-175.0	60-125
DfB: Delfina	0-15	5.9-17	---	6.1-7.8	0	0	0.0-2.0	0
	15-33	19-28	---	6.6-8.4	0-5	0	0.0-4.0	0
	33-80	17-28	---	7.4-8.4	5-15	0	0.0-4.0	0
DnB: Delfina	0-16	5.9-17	---	6.1-7.8	0	0	0.0-2.0	0
	16-34	19-28	---	6.6-8.4	0-5	0	0.0-4.0	0
	34-80	17-28	---	7.4-8.4	5-15	0	0.0-4.0	0
DrA: Dietrich	0-12	1.1-6.5	---	6.1-7.3	0-1	0	0.0-2.0	0-10
	12-45	13-18	---	7.4-8.4	0-15	0	2.0-8.0	15-40
	45-80	10-18	---	7.9-8.4	0-15	0	2.0-8.0	20-50
DsB: Dietrich	0-33	1.1-6.5	---	5.6-7.3	0	0	0.0-2.0	0
	33-38	9.5-19	---	6.6-8.4	0-2	0-2	0.0-2.0	0-5
	38-80	9.3-19	---	6.6-8.4	0-2	---	0.0-2.0	5-20

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
DTE: Dune land	0-80	---	---	6.1-8.4	0	0	0.0-2.0	0
DU: Dune land	0-80	---	---	6.1-8.4	0	0	0.0-2.0	0
DXC: Dune land	0-80	---	---	6.1-8.4	0	0	0.0-2.0	0
Satatton	0-17 17-80	3.1-9.1 3.1-9.1	---	6.6-9.0 6.6-9.0	3-15 3-15	0 0-1	60.0-175.0 60.0-175.0	60-125 60-125
EdA: Edroy	0-18 18-57 57-70 70-80	30-41 27-38 16-27 4.9-31	---	6.1-7.3 7.9-8.4 7.9-8.4 7.9-9.0	0 0-10 2-15 0-5	0 0 0 0-2	0.0-8.0 0.0-8.0 0.0-8.0 0.0-8.0	0-4 0-4 0-4 0-4
EsA: Estella	0-17 17-57 57-80	0.5-7.0 0.5-7.0 6.2-18	---	5.6-7.3 5.6-7.3 5.6-8.4	0 0 0-5	0 0 0-2	0.0-2.0 0.0-2.0 0.0-4.0	0-4 0-4 0-10
FaC: Falfurrias	0-15 15-80	0.9-7.1 0.9-5.3	---	6.1-7.3 5.6-6.5	0 0	0 0	0.0-2.0 0.0-2.0	0 0
FaE: Falfurrias	0-15 15-80	0.9-7.1 0.1-1.8	---	6.1-7.3 5.6-6.5	0 0	0 0	0.0-2.0 0.0-2.0	0 0
FmC: Falfurrias	0-15 15-80	0.9-7.1 0.9-6.5	---	6.1-7.3 5.6-6.5	0 0	0 0	0.0-2.0 0.0-2.0	0 0
Atiras	0-17 17-58 58-61 61-80	1.6-6.4 0.9-5.3 4.2-9.7 5.9-16	---	5.6-7.3 5.6-7.3 5.6-7.3 5.6-7.8	0 0 0 0-5	0 0 0 0-2	0.0-2.0 0.0-2.0 0.0-2.0 0.0-2.0	0-4 0-8 0-8 3-8
Medanito	0-26 26-32 32-36 36-42 42-61 61-80	0.9-6.0 0.9-4.7 7.0-9.9 6.5-16 6.5-16 6.5-13	---	5.6-6.5 5.6-7.3 5.6-6.5 6.1-7.8 6.6-8.4 6.6-8.4	0 0 0 0-2 0-2 0-2	0 0 0 0-2 0 0	0.1-0.5 0.1-1.0 0.0-2.0 0.0-2.0 0.0-4.0 0.0-4.0	0-5 0-6 2-10 4-13 13-30 13-20
FoD: Falfurrias	0-15 15-80	0.9-7.1 0.9-6.5	---	6.1-7.3 5.6-6.5	0 0	0 0	0.0-2.0 0.0-2.0	0 0
Cayo	0-19 19-41 41-60 60-80	4.0-6.6 3.9-7.9 3.9-6.4 3.9-6.4	---	7.9-9.0 7.9-9.0 7.9-9.0 7.9-9.0	0-15 8-20 1-10 1-10	0 0 0 0	0.0-4.0 8.0-16.0 16.0-32.0 16.0-32.0	0-3 13-35 15-50 15-50

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
FtD:								
Falfurrias	0-15	0.9-7.1	---	6.1-7.3	0	0	0.0-2.0	0
	15-80	0.9-6.5	---	5.6-6.5	0	0	0.0-2.0	0
Topo	0-10	2.9-5.5	---	7.9-9.5	2-10	0	2.0-8.0	10-40
	10-51	2.7-6.1	---	7.9-9.5	2-10	0	2.0-16.0	20-60
	51-80	3.4-11	---	7.9-9.0	1-5	0	4.0-16.0	10-40
GeB:								
Gertrudis	0-17	8.1-11	---	7.9-8.4	2-5	0	0.0-4.0	0-10
	17-41	12-17	---	7.9-8.4	2-5	0	0.0-4.0	0-10
	41-80	12-18	---	7.9-8.4	10-35	0	0.0-4.0	0-10
GhE:								
Greenhill	0-28	1.0-2.7	---	5.1-6.5	0	0	0.0-2.0	0-4
	28-80	1.0-2.7	---	5.1-6.5	0	0	0.0-2.0	0-4
GmE:								
Greenhill	0-21	1.0-2.7	---	5.1-6.5	0	0	0.0-2.0	0-4
	21-80	1.0-2.7	---	5.1-6.5	0	0	0.0-2.0	0-4
Mustang	0-19	0.1-4.2	---	6.6-9.0	1-5	0	0.0-4.0	0-10
	19-80	0.1-4.0	---	6.6-9.0	1-5	0	0.0-4.0	0-8
GRE:								
Riverwash	---	---	---	---	---	---	---	---
Gullied land	---	---	---	---	---	---	---	---
IcA:								
Incell	0-25	28-40	---	6.1-7.3	0	0	0.0-4.0	0-5
	25-60	15-28	---	7.4-8.4	0-10	0	0.0-4.0	2-10
	60-80	14-28	---	7.9-9.0	0-10	0	0.0-4.0	10-20
LaC:								
La Linda	0-10	8.1-16	---	7.4-8.4	0-15	0	2.0-8.0	1-10
	10-65	9.4-19	---	7.9-9.0	2-20	0	4.0-24.0	10-25
	65-80	7.6-21	---	7.9-9.0	5-30	0	13.0-35.0	15-35
LpC:								
Lopeno	0-5	0.5-8.5	---	5.6-7.3	0	0	0.0-2.0	1-4
	5-41	0.5-7.1	---	5.6-7.3	0-2	0	0.0-4.0	1-8
	41-65	0.5-6.9	---	5.6-7.3	0-2	0	0.0-4.0	1-8
	65-69	2.3-9.3	---	5.6-7.3	0	0	0.0-2.0	2-8
	69-80	4.5-15	---	5.6-7.3	0-2	0	0.0-4.0	2-8
Potrero	0-10	0.5-7.4	---	5.6-7.3	0	0	0.0-2.0	1-4
	10-30	0.5-7.6	---	5.6-7.3	0-2	0	0.0-4.0	1-4
	30-35	2.3-9.3	---	5.6-7.3	0	0	0.0-2.0	1-4
	35-42	4.5-15	---	5.6-7.3	0-2	0	0.0-4.0	1-4
	42-80	4.5-15	---	5.6-7.3	0-2	0	0.0-4.0	1-5
Arenisco	0-7	0.5-5.0	---	6.1-7.8	0	0	0.1-2.0	0-5
	7-80	0.5-4.6	---	6.1-7.8	0	0	0.1-2.0	0-5

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
LsC:								
Lopeno	0-5	0.5-8.5	---	5.6-7.3	0	0	0.0-2.0	1-4
	5-41	0.5-7.1	---	5.6-7.3	0-2	0	0.0-4.0	1-8
	41-65	0.5-6.9	---	5.6-7.3	0-2	0	0.0-4.0	1-8
	65-69	2.3-9.3	---	5.6-7.3	0	0	0.0-2.0	2-8
	69-80	4.5-15	---	5.6-7.3	0-2	0	0.0-4.0	2-8
Sauce1	0-4	2.2-9.1	---	7.9-9.0	0-2	0	16.0-50.0	5-15
	4-44	5.4-9.1	---	7.9-9.0	0-2	0-2	30.0-50.0	5-15
	44-80	2.1-15	---	7.9-9.0	0-5	0-4	30.0-70.0	5-15
LzC:								
Lopeno	0-5	0.5-8.5	---	5.6-7.3	0	0	0.0-2.0	1-4
	5-41	0.5-7.1	---	5.6-7.3	0-2	0	0.0-4.0	1-8
	41-65	0.5-6.9	---	5.6-7.3	0-2	0	0.0-4.0	1-8
	65-69	2.3-9.3	---	5.6-7.3	0	0	0.0-2.0	2-8
	69-80	4.5-15	---	5.6-7.3	0-2	0	0.0-4.0	2-8
Sauz	0-7	1.6-4.3	---	6.6-7.8	0	0	2.0-4.0	15-20
	7-13	4.2-12	---	7.9-9.5	0	0	2.0-16.0	15-24
	13-24	5.2-13	---	7.9-9.5	1-10	0	4.0-16.0	15-28
	24-55	5.2-11	---	7.9-9.5	1-10	0	4.0-16.0	16-32
	55-80	5.2-12	---	7.9-9.5	1-10	0	8.0-30.0	16-32
MaA:								
Madre	0-11	0.1-4.2	---	6.6-9.0	5-15	0	0.0-4.0	5-20
	11-41	0.1-4.0	---	6.6-9.0	5-15	0	2.0-8.0	13-40
	41-46	0.1-4.0	---	6.6-9.0	5-15	0	2.0-8.0	13-40
	46-80	0.1-4.0	---	6.6-9.0	5-15	0	2.0-8.0	13-40
MaLaquite	0-5	0.1-5.5	---	6.6-9.0	1-10	0	10.0-45.0	30-50
	5-21	0.1-5.0	---	6.6-9.0	1-10	0	15.0-75.0	30-60
	21-27	0.1-5.0	---	6.6-9.0	1-10	0	20.0-75.0	35-70
	27-80	0.1-5.0	---	6.6-9.0	1-10	0	20.0-75.0	35-70
MnB:								
Madre	0-8	0.1-4.2	---	6.6-9.0	1-5	0	0.0-4.0	5-20
	8-80	0.1-4.0	---	6.6-9.0	1-5	0	2.0-8.0	13-40
Panam	0-23	0.8-2.6	---	7.4-9.0	5-15	0	0.0-2.0	0-4
	23-38	0.8-2.6	---	7.4-9.0	5-15	0	0.0-4.0	0-8
	38-80	0.8-2.6	---	7.4-9.0	5-15	0	0.0-4.0	0-8
MoA:								
Montealto	0-18	21-32	---	5.6-7.3	2-5	0-5	4.0-8.0	4-8
	18-47	23-32	---	7.9-9.0	2-5	0-5	8.0-16.0	5-10
	47-80	20-37	---	7.9-9.0	2-5	0-10	8.0-16.0	5-20
MSA:								
Mustang	0-19	0.1-4.2	---	6.6-9.0	1-5	0	0.0-4.0	0-10
	19-80	0.1-4.0	---	6.6-9.0	1-5	0	0.0-4.0	0-8
MtB:								
Mustang	0-19	0.1-3.5	---	6.6-9.0	1-5	0	0.0-4.0	0-10
	19-80	0.1-2.6	---	6.6-9.0	1-5	0	0.0-4.0	0-8

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Padre	0-19	0.8-2.6	---	5.1-7.3	1-5	0	0.0-2.0	0-4
	19-28	0.8-2.6	---	5.1-7.3	1-5	0	0.0-2.0	0-4
	28-80	0.8-2.6	---	5.1-7.3	1-5	0	0.0-2.0	0-4
MuB: Mustang	0-11	0.1-4.2	---	6.6-9.0	1-5	0	0.0-4.0	0-10
	11-80	0.1-4.0	---	6.6-9.0	1-5	0	0.0-4.0	0-8
Panam	0-9	0.8-3.3	---	7.4-9.0	5-15	0	0.0-2.0	0-4
	9-36	0.8-3.3	---	7.4-9.0	5-15	0	0.0-4.0	0-8
	36-80	0.8-3.3	---	7.4-9.0	5-15	0	0.0-4.0	0-8
NaA: Narta	0-6	8.9-17	---	6.1-7.3	0	0	1.0-16.0	8-15
	6-20	25-33	---	7.4-9.0	0-5	0	8.0-25.0	15-45
	20-49	22-33	---	7.9-9.0	5-15	0	8.0-30.0	15-45
	49-80	17-33	---	7.9-9.0	8-20	0	8.0-30.0	15-45
NeA: Novillo	0-2	81-100	---	5.6-6.5	0	0	0.0-2.0	0
	2-12	0.9-2.6	---	5.6-7.3	0	0	0.0-4.0	0-8
	12-80	0.9-2.6	---	6.1-7.8	0	0	0.0-4.0	2-10
NfC: Nueces	0-33	1.1-6.5	---	5.6-7.3	0	0	0.0-2.0	0
	33-44	9.5-19	---	6.6-8.4	0-2	0-2	0.0-2.0	0-5
	44-80	9.3-19	---	6.6-8.4	0-2	0-2	0.0-2.0	5-12
NsC: Nueces	0-33	1.1-6.5	---	5.6-7.3	0	0	0.0-2.0	0
	33-44	9.5-19	---	6.6-8.4	0-2	0-2	0.0-2.0	0-5
	44-80	9.3-19	---	6.6-8.4	0-2	0-2	0.0-2.0	5-12
Sarita	0-64	0.5-7.0	---	6.1-7.3	0	0	0.0-2.0	0
	64-80	5.7-18	---	5.6-8.4	0-5	0-2	0.0-2.0	0-8
OfA: Orelia	0-10	8.6-19	---	6.1-7.3	0	0	0.0-0.5	0-4
	10-15	20-29	---	6.1-7.3	0	0	0.0-0.5	0-6
	15-30	20-26	---	6.6-7.8	0-2	0	0.2-1.5	2-12
	30-80	17-24	---	7.9-9.0	1-10	0-2	1.0-2.0	6-14
PaA: Padrones	0-26	0.1-5.4	---	5.6-7.3	0	0	0.0-2.0	0-20
	26-80	4.2-18	---	6.6-8.4	0-5	0	0.0-4.0	13-30
PbA: Palobia	0-14	2.2-6.5	---	5.6-7.3	0	0	0.0-2.0	0-5
	14-31	9.3-19	---	6.6-9.0	0-5	0	0.0-8.0	5-30
	31-80	9.2-19	---	7.4-9.0	0-10	0	4.0-16.0	15-50
PbB: Palobia	0-14	2.2-6.5	---	5.6-7.3	0	0	0.0-2.0	0-5
	14-31	9.3-19	---	6.6-9.0	0-5	0	0.0-8.0	5-30
	31-80	9.2-19	---	7.4-9.0	0-10	0	4.0-16.0	15-50

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
PeB: Palobia	0-14	2.2-11	---	6.1-7.8	0	0	1.0-4.0	0-5
	14-31	13-19	---	6.6-8.4	0-10	0	1.0-5.0	0-15
	31-80	12-17	---	7.4-8.4	0-10	0	2.0-12.0	13-30
PfA: Palobia	0-14	2.2-11	---	6.1-7.8	0	0	1.0-4.0	0-5
	14-31	13-19	---	6.6-8.4	0-10	0	1.0-5.0	0-15
	31-80	12-17	---	7.4-8.4	0-10	0	2.0-12.0	13-30
Colmena	0-11	7.3-17	---	6.6-7.8	0	0	0.0-2.0	0
	11-39	18-28	---	6.6-8.4	0-20	0	0.0-2.0	0
	39-80	18-28	---	6.6-8.4	0-20	0	0.0-2.0	0
PfB: Palobia	0-14	2.2-11	---	6.1-7.8	0	0	1.0-4.0	0-5
	14-31	13-19	---	6.6-8.4	0-10	0	1.0-5.0	0-15
	31-80	12-17	---	7.4-8.4	0-10	0	2.0-12.0	13-30
Colmena	0-11	7.3-17	---	6.6-7.8	0	0	0.0-2.0	0
	11-39	18-28	---	6.6-8.4	0-20	0	0.0-2.0	0
	39-80	18-28	---	6.6-8.4	0-20	0	0.0-2.0	0
PgA: Papagua	0-12	2.7-9.7	---	6.1-7.3	0	0	0.0-2.0	0-5
	12-70	18-27	---	6.1-7.3	0	0	0.0-2.0	0-5
	70-80	16-24	---	7.4-8.4	0-15	0	0.0-2.0	0-5
PIT: Pits, quarry	---	---	---	---	---	---	---	---
PnC: Point Isabel	0-8	23-30	---	7.9-9.0	5-10	0	4.0-8.0	5-10
	8-37	25-39	---	7.9-9.0	5-10	0	4.0-8.0	13-20
	37-80	25-39	---	7.9-9.0	5-15	0	8.0-20.0	13-20
PoB: Portalto	0-8	0.7-7.6	---	6.1-7.8	0	0	0.0-5.0	0
	8-58	0.7-7.6	---	6.1-7.8	0	0	0.0-5.0	0
	58-80	6.5-18	---	5.6-8.4	0-5	0-2	0.0-2.0	0-8
PrC: Potrero	0-10	0.5-7.4	---	5.6-7.3	0	0	0.0-2.0	1-4
	10-30	0.5-7.6	---	5.6-7.3	0-2	0	0.0-4.0	1-4
	30-35	2.3-9.3	---	5.6-7.3	0	0	0.0-2.0	1-4
	35-42	4.5-15	---	5.6-7.3	0-2	0	0.0-4.0	1-4
	42-80	4.5-15	---	5.6-7.3	0-2	0	0.0-4.0	1-5
Lopeno	0-5	0.5-8.5	---	5.6-7.3	0	0	0.0-2.0	1-4
	5-41	0.5-7.1	---	5.6-7.3	0-2	0	0.0-4.0	1-8
	41-65	0.5-6.9	---	5.6-7.3	0-2	0	0.0-4.0	1-8
	65-69	2.3-9.3	---	5.6-7.3	0	0	0.0-2.0	2-8
	69-80	4.5-15	---	5.6-7.3	0-2	0	0.0-4.0	2-8
Noria	0-3	0.9-9.9	---	6.6-9.0	0-3	0	2.0-24.0	11-78
	3-39	0.9-9.9	---	6.6-9.0	0-3	0	2.0-24.0	11-78
	39-80	4.5-11	---	6.6-9.0	0	0	2.0-15.0	20-45

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
PtB: Premont	0-8	5.9-17	---	6.1-7.8	0	0	0.0-2.0	0
	8-37	19-28	---	6.6-8.4	0-5	0	0.0-4.0	0
	37-80	17-28	---	7.4-8.4	5-15	0	0.0-4.0	0
QuA: Quiteria	0-11	0.3-3.3	---	5.6-7.3	0	0	0.0-2.0	0-5
	11-34	4.2-9.6	---	6.6-9.0	0-5	0	1.0-8.0	13-30
	34-80	4.2-15	---	7.9-9.0	0-10	0-1	10.0-18.0	13-40
RaB: Ramita	0-15	1.1-5.4	---	5.1-7.3	0-1	0	0.0-2.0	3-10
	15-22	8.5-14	---	6.6-8.4	0-15	0	0.0-4.0	6-23
	22-55	10-15	---	6.6-9.0	0-15	0	0.0-8.0	13-53
	55-80	10-19	---	7.4-9.0	5-35	0-1	8.0-20.0	30-60
RbB: Ramita	0-15	1.1-5.4	---	5.1-7.3	0-1	0	0.0-2.0	3-10
	15-22	8.5-14	---	6.6-8.4	0-15	0	0.0-4.0	6-23
	22-55	10-15	---	6.6-9.0	0-15	0	0.0-8.0	13-53
	55-80	10-19	---	7.4-9.0	5-35	0-1	8.0-20.0	30-60
Bordas	0-11	1.6-8.6	---	5.1-6.5	0	0	0.0-2.0	0-4
	11-18	9.3-19	---	5.1-8.4	0	0	0.0-2.0	0-8
	18-70	11-19	---	7.4-9.0	0-15	0	0.0-2.0	0-8
	70-80	11-19	---	7.4-9.0	0-2	0	0.0-2.0	0-8
RoB: Rockport	0-18	1.4-6.1	---	5.6-8.4	5-10	0	0.0-4.0	2-4
	18-80	1.4-6.1	---	5.6-8.4	5-10	0	0.0-4.0	2-4
SA: Salt flats, very frequently flooded	---	---	---	---	---	---	---	---
SF: Salt flats, ponded	---	---	---	---	---	---	---	---
SnC: Sarita	0-64	0.5-7.0	---	6.1-7.3	0	0	0.0-2.0	0
	64-80	5.7-18	---	5.6-8.4	0-5	0-2	0.0-2.0	0-8
SrC: Sarita	0-64	0.5-7.0	---	6.1-7.3	0	0	0.0-2.0	0
	64-80	5.7-18	---	5.6-8.4	0-5	0-2	0.0-2.0	0-8
Cayo	0-19	4.0-6.6	---	7.9-9.0	0-15	0	0.0-4.0	0-3
	19-41	3.9-7.9	---	7.9-9.0	8-20	0	8.0-16.0	13-35
	41-60	3.9-6.4	---	7.9-9.0	1-10	0	16.0-32.0	15-50
	60-80	3.9-6.4	---	7.9-9.0	1-10	0	16.0-32.0	15-50
SsC: Sarita	0-64	0.5-7.0	---	6.1-7.3	0	0	0.0-2.0	0
	64-80	5.7-18	---	5.6-8.4	0-5	0-2	0.0-2.0	0-8
Topo	0-10	2.9-5.5	---	7.9-9.5	2-10	0	2.0-8.0	10-40
	10-51	2.7-6.1	---	7.9-9.5	2-10	0	2.0-16.0	20-60
	51-80	3.4-11	---	7.9-9.0	1-5	0	4.0-16.0	10-40

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
StA: Sattaton	0-17	3.1-9.1	---	6.6-9.0	3-15	0	60.0-175.0	60-125
	17-80	3.1-9.1	---	6.6-9.0	3-15	0-1	60.0-175.0	60-125
SuA: Sauce1	0-4	2.2-9.1	---	7.9-9.0	0-2	0	16.0-50.0	5-15
	4-44	5.4-9.1	---	7.9-9.0	0-2	0-2	30.0-50.0	5-15
	44-80	2.1-15	---	7.9-9.0	0-5	0-4	30.0-70.0	5-15
SxB: Sauce1	0-4	2.2-9.1	---	7.9-9.0	0-2	0	16.0-50.0	5-15
	4-44	5.4-9.1	---	7.9-9.0	0-2	0-2	30.0-50.0	5-15
	44-80	2.1-15	---	7.9-9.0	0-5	0-4	30.0-70.0	5-15
Potrero	0-10	0.5-7.4	---	5.6-7.3	0	0	0.0-2.0	1-4
	10-30	0.5-7.6	---	5.6-7.3	0-2	0	0.0-4.0	1-4
	30-35	2.3-9.3	---	5.6-7.3	0	0	0.0-2.0	1-4
	35-42	4.5-15	---	5.6-7.3	0-2	0	0.0-4.0	1-4
	42-80	4.5-15	---	5.6-7.3	0-2	0	0.0-4.0	1-5
SyA: Sauz	0-7	1.6-4.3	---	6.6-7.8	0	0	2.0-4.0	15-20
	7-13	4.2-12	---	7.9-9.5	0	0	2.0-16.0	15-24
	13-24	5.2-13	---	7.9-9.5	1-10	0	4.0-16.0	15-28
	24-55	5.2-11	---	7.9-9.5	1-10	0	4.0-16.0	16-32
	55-80	5.2-12	---	7.9-9.5	1-10	0	8.0-30.0	16-32
SzA: Sauz	0-7	1.6-4.3	---	6.6-7.8	0	0	2.0-4.0	15-20
	7-13	4.2-12	---	7.9-9.5	0	0	2.0-16.0	15-24
	13-24	5.2-13	---	7.9-9.5	1-10	0	4.0-16.0	15-28
	24-55	5.2-11	---	7.9-9.5	1-10	0	4.0-16.0	16-32
	55-80	5.2-12	---	7.9-9.5	1-10	0	8.0-30.0	16-32
Sauce1	0-4	2.2-9.1	---	7.9-9.0	0-2	0	16.0-50.0	5-15
	4-44	5.4-9.1	---	7.9-9.0	0-2	0-2	30.0-50.0	5-15
	44-80	2.1-15	---	7.9-9.0	0-5	0-4	30.0-70.0	5-15
TaA: Tatton	0-4	1.7-9.1	---	6.6-9.0	5-15	0	60.0-175.0	60-125
	4-12	1.6-8.3	---	6.6-9.0	5-15	0	60.0-175.0	60-125
	12-80	1.6-8.3	---	6.6-9.0	5-15	0	60.0-175.0	60-125
TBA: Tatton	0-11	3.2-9.1	---	6.6-9.0	1-3	0	60.0-175.0	60-100
	11-80	2.9-8.3	---	6.6-9.0	1-5	0	60.0-175.0	60-100
Beaches, washover fan	0-80	---	---	6.6-9.0	5-15	0	60.0-175.0	60-100
ToA: Topo	0-10	2.9-5.5	---	7.9-9.5	2-10	0	2.0-8.0	10-40
	10-51	2.7-6.1	---	7.9-9.5	2-10	0	2.0-16.0	20-60
	51-80	3.4-11	---	7.9-9.0	1-5	0	4.0-16.0	10-40
TsA: Topo	0-10	2.9-5.5	---	7.9-9.5	2-10	0	2.0-8.0	10-40
	10-51	2.7-6.1	---	7.9-9.5	2-10	0	2.0-16.0	20-60
	51-80	3.4-11	---	7.9-9.0	1-5	0	4.0-16.0	10-40

Soil Survey of Kenedy and Kleberg Counties, Texas

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
Sauce1	0-4	2.2-9.1	---	7.9-9.0	0-2	0	16.0-50.0	5-15
	4-44	5.4-9.1	---	7.9-9.0	0-2	0-2	30.0-50.0	5-15
	44-80	2.1-15	---	7.9-9.0	0-5	0-4	30.0-70.0	5-15
TwA: Twinpalms	0-18	2.1-5.4	---	7.4-9.0	5-15	0	0.0-4.0	0-8
	18-30	2.6-10	---	7.4-9.0	5-15	0	0.0-4.0	0-8
	30-80	2.6-9.6	---	6.6-9.0	5-15	0	0.0-4.0	0-8
Yarborough	0-7	3.8-9.7	---	7.4-8.4	5-15	0	15.0-60.0	20-60
	7-80	2.6-9.6	---	7.4-8.4	5-15	0	20.0-60.0	20-60
VaA: Victine	0-6	24-34	---	7.4-8.4	0-1	0	0.5-4.0	1-10
	6-24	30-43	---	7.4-8.4	0-5	0-1	1.0-5.0	1-20
	24-45	29-40	---	7.4-8.4	2-15	0-6	4.0-12.0	4-20
	45-80	29-41	---	7.4-8.4	2-20	0-6	2.0-12.0	4-20
VcA: Victoria	0-12	30-41	---	7.4-8.4	0-1	0	1.0-4.0	1-10
	12-31	33-44	---	7.4-8.4	2-5	0-1	1.0-8.0	1-12
	31-50	33-44	---	7.4-8.4	2-5	0-1	1.0-16.0	13-20
	50-80	28-42	---	7.4-8.4	2-15	0-6	1.0-16.0	13-20
VcB: Victoria	0-12	30-41	---	7.4-8.4	0-1	0	1.0-4.0	1-10
	12-31	33-44	---	7.4-8.4	2-5	0-1	1.0-8.0	1-12
	31-50	33-44	---	7.4-8.4	2-5	0-1	1.0-16.0	13-20
	50-80	28-42	---	7.4-8.4	2-15	0-6	1.0-16.0	13-20
W: Water	---	---	---	---	---	---	---	
YaA: Yarborough	0-8	3.8-9.7	---	7.4-8.4	5-15	0	15.0-60.0	20-60
	8-80	2.6-9.6	---	7.4-8.4	5-15	0	20.0-60.0	20-60
YtC: Yturria	0-26	4.8-15	---	6.6-7.8	0-2	0	0.0-2.0	0-2
	26-80	6.6-16	---	6.6-8.4	0-5	0	0.0-2.0	0-2

Table 28.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
AaA: Aransas-----	D	Medium	Feb-Mar	1.5-3.0	>6.0	---	---	None	---	---
			Apr-Jun	1.5-3.0	>6.0	---	---	None	Long	Frequent
			Jul-Aug	---	---	---	---	None	Long	Frequent
			Sept	1.5-3.0	>6.0	---	---	None	Long	Frequent
			Oct-Dec	1.5-3.0	>6.0	---	---	None	---	---
AcC: Arenisco-----	A	Very low	Jan-Apr	3.6-5.0	>6.0	---	---	None	---	---
			May-Aug	3.6-5.0	>6.0	---	---	None	---	Very rare
			Sept-Nov	3.6-5.0	>6.0	---	---	None	---	Very rare
			Dec	3.6-5.0	>6.0	---	---	None	---	---
AnC: Arenisco-----	A	Very low	Jan-Apr	3.6-5.0	>6.0	---	---	None	---	---
			May	3.6-5.0	>6.0	---	---	None	---	Very rare
			Jun-Aug	---	---	---	---	None	---	Very rare
			Sept-Nov	3.6-5.0	>6.0	---	---	None	---	Very rare
			Dec	3.6-5.0	>6.0	---	---	None	---	---
Topo-----	A/D	Negligible	Jan-Apr	0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	---
			May	0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	Rare
			Jun-Aug	---	---	---	---	---	---	Rare
			Sept-Nov	0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	Rare
			Dec	0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	---
ArA: Arrada-----	C/D	Negligible	Jan-May	0.0-3.0	>6.0	---	---	---	Very brief	Very frequent
			Jun-Oct	0.0-3.0	>6.0	0.0-1.0	Long	Frequent	Very brief	Very frequent
			Nov-Dec	0.0-3.0	>6.0	---	---	---	Very brief	Very frequent
AsC: Arrada-----	C/D	Negligible	Jan-May	0.0-3.0	>6.0	---	---	---	Very brief	Very frequent
			June-Oct	0.0-3.0	>6.0	0.0-1.0	Long	Frequent	Very brief	Very frequent
			Nov-Dec	0.0-3.0	>6.0	---	---	---	Very brief	Very frequent
Lalinda-----	C	Medium	May-Nov	---	---	---	---	None	---	Very rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
BA: Baffin-----	C/D	Negligible	Jan-Dec	Ft 0.0	Ft >6.0	Ft 0.0-5.0	Very long	Frequent	---	None
BbA: Banquete-----	C/D	Low	Jan-Dec	---	---	---	---	None	---	None
BdA: Barrada-----	D	Low	Jan-May Jun-Dec	0.0-3.0 0.0-3.0	>6.0 >6.0	--- 0.0-1.0	--- Long	--- Occasional	Very brief Very brief	Very frequent Very frequent
BE1: Beaches-----	---	---	Jan-Dec	0.0-0.5	>6.0	---	---	None	Brief	Very frequent
BE2: Beaches-----	---	---	Jan-Dec	0.0-0.5	>6.0	---	---	None	Brief	Very frequent
BE3: Beaches-----	---	---	Jan-Dec	0.0-0.5	>6.0	---	---	None	Brief	Very frequent
BE4: Beaches-----	---	---	January	0.0-0.5	>6.0	---	---	None	Brief	Very frequent
BrA: Bordas-----	C/D	Negligible	Jan-May Jun-Aug Sept-Dec	0.0-4.1 --- 0.0-4.1	>6.0 --- >6.0	0.0-1.0 --- 0.0-1.0	Long --- Long	Occasional --- Occasional	--- --- ---	None None None
CaA: Calallen-----	D	Negligible	Jan-Dec	---	---	---	---	None	---	None
CeA: Carreta-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
ChA: Cayo-----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
CkA: Clareville-----	C	Negligible	Jan-Dec	---	---	---	---	None	---	None
CkB: Clareville-----	C	Low	Jan-Dec	---	---	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
CmA: Colmena-----	B	Low	Jan-Dec	Ft ---	Ft ---	Ft ---	---	None	---	None
CmB: Colmena-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
CnA: Cranell-----	D	High	Jan-Dec	---	---	---	---	None	---	None
CnB: Cranell-----	D	High	Jan-Dec	---	---	---	---	None	---	None
CrA: Czar-----	B	Negligible	Jan-Dec	---	---	---	---	None	---	None
CrB: Czar-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
CzA: Czar-----	B	Negligible	Jan-Dec	---	---	---	---	None	---	None
DaE: Daggerhill-----	A	Low	Jun-Nov	---	---	---	---	None	---	Rare
DdE: Daggerhill-----	A	Low	Jun-Nov	---	---	---	---	None	---	Rare
Mustang-----	D	Negligible	Jan-May	0.0-0.5	>6.0	---	---	---	---	---
			Jun-Aug	0.0-0.5	>6.0	---	---	---	Brief	Occasional
			Sept-Nov	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
			Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	---
DeE: Daggerhill-----	A	Low	Jun-Nov	---	---	---	---	None	---	Rare
Satatton-----	D	Negligible	Jan-Mar	0.0-1.5	>6.0	---	---	None	Brief	Frequent
			Apr-Jun	0.0-1.5	>6.0	---	---	None	---	---
			Jul-Dec	0.0-1.5	>6.0	---	---	None	Brief	Frequent
DfB: Delfina-----	C	Low	Jan-Dec	---	---	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
DnB: DeI fina-----	C	Low	Jan-Dec	Ft ---	Ft ---	Ft ---	---	None	---	None
DrA: Dietrich-----	C/D	Medium	Jan-Apr	0.5-3.0	1.0-3.5	---	---	None	---	---
			May	0.5-3.0	1.0-3.5	---	---	None	---	Very rare
			Jun-Aug	---	---	---	---	None	---	Very rare
			Sept-Nov	0.5-3.0	1.0-3.5	---	---	None	---	Very rare
			Dec	0.5-3.0	1.0-3.5	---	---	None	---	---
DsB: Dietrich-----	C	High	Jan-Apr	0.5-3.0	1.0-3.5	---	---	None	---	---
			May	0.5-3.0	1.0-3.5	---	---	None	---	Very rare
			Jun-Aug	---	---	---	---	None	---	Very rare
			Sept-Nov	0.5-3.0	1.0-3.5	---	---	None	---	Very rare
			Dec	0.5-3.0	1.0-3.5	---	---	None	---	---
DTE: Dune land-----	---	---	Jan-Dec	---	---	---	---	None	Very brief	Occasional
DU: Dune land-----	---	---	Jun-Oct	---	---	---	---	None	Very brief	Occasional
DXC: Dune land-----	---	---	Jun-Oct	---	---	---	---	None	Very brief	Occasional
Satatton-----	D	Negligible	Jan-Mar	0.0-1.5	>6.0	---	---	None	Brief	Frequent
			Apr-Jun	0.0-1.5	>6.0	---	---	None	---	---
			Jul-Dec	0.0-1.5	>6.0	---	---	None	Brief	Frequent
EdA: Edroy-----	D	Negligible	Jan-Mar	0.0-1.2	1.5-3.5	0.0-2.0	Very long	Occasional	---	None
			February	0.0-1.2	1.5-3.5	0.0-2.0	Very long	Occasional	---	None
			March	0.0-1.2	1.5-3.5	0.0-2.0	Very long	Occasional	---	None
			Apr-Jun	0.0-1.2	>6.0	---	---	---	---	None
			Jul-Aug	---	---	---	---	---	---	None
			Sept-Dec	0.0-1.2	1.5-3.5	0.0-2.0	Very long	Occasional	---	None
EsA: Estella-----	A	Negligible	Jan-Oct	1.2-2.5	5.4-6.7	---	---	None	---	None
			Nov-Dec	1.2-2.5	5.4-6.7	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
FaC: Falfurrias-----	A	Negligible	Jan-Dec	Ft ---	Ft ---	Ft ---	---	None	---	None
FaE: Falfurrias-----	A	Very low	Jan-Dec	---	---	---	---	None	---	None
FmC: Falfurrias-----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
Atiras -----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
Medanito -----	A	Very low	Jan-Dec	---	---	---	---	None	---	None
FoD: Falfurrias-----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
Cayo-----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
FtD: Falfurrias-----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
Topo-----	A/D	Negligible	Jan-May Jun-Aug Sept-Dec	0.0-2.0 --- 0.0-2.0	>6.0 --- >6.0	0.0-0.5 --- 0.0-0.5	Long --- Long	Frequent --- Frequent	--- --- ---	None None None
GeB: Gertrudis-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
GhE: Greenhill-----	A	Very low	Jun-Nov	---	---	---	---	None	---	Rare
GmE: Greenhill-----	A	Very low	Jun-Nov	---	---	---	---	None	---	Rare
Mustang-----	D	Negligible	Jan-May Jun-Aug Sept-Nov Dec	0.0-0.5 0.0-0.5 0.0-0.5 0.0-0.5	>6.0 >6.0 >6.0 >6.0	--- --- 0.0-0.5 0.0-0.5	--- --- Long Long	--- --- Frequent Frequent	--- Brief Brief ---	--- Occasional Occasional ---

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
GRE: Riverwash-----	---	---	Apr-Nov	Ft ---	Ft ---	Ft ---	---	None	Brief	Frequent
Gullied land-----	---	---	Jan-Dec	---	---	---	---	---	---	None
ICa: Incell-----	D	Negligible	Jan-Dec	0.0-0.7	>6.0	0.0-3.0	Long	Frequent	---	None
LaC: Lalinda-----	C	Medium	May-Nov	---	---	---	---	None	---	Very rare
LpC: Lopeno-----	A	Very low	Jan-Apr	3.0-5.0	>6.0	---	---	None	---	---
			May	3.0-5.0	>6.0	---	---	None	---	Very rare
			Jun-Aug	---	---	---	---	None	---	Very rare
			Sept-Nov	3.0-5.0	>6.0	---	---	None	---	Very rare
			Dec	3.0-5.0	>6.0	---	---	None	---	---
Potrero-----	B	Negligible	Jan-Apr	1.0-3.0	>6.0	---	---	None	---	---
			May	1.0-3.0	>6.0	---	---	None	---	Very rare
			Jun-Aug	---	---	---	---	None	---	Very rare
			Sept-Nov	1.0-3.0	>6.0	---	---	None	---	Very rare
			Dec	1.0-3.0	>6.0	---	---	None	---	---
Arenisco-----	A	Very low	May-Nov	---	---	---	---	None	---	Very rare
LsC: Lopeno-----	A	Very low	Jan-Apr	3.0-5.0	>6.0	---	---	None	---	---
			May	3.0-5.0	>6.0	---	---	None	---	Very rare
			Jun-Aug	---	---	---	---	None	---	Very rare
			Sept-Nov	3.0-5.0	>6.0	---	---	None	---	Very rare
			Dec	3.0-5.0	>6.0	---	---	None	---	---
Sauce1-----	B/D	Negligible	Jan-Feb	0.0-3.0	>6.0	---	---	---	---	---
			Mar-Apr	0.0-3.0	>6.0	0.0-1.0	Long	Occasional	---	---
			May-Nov	0.0-3.0	>6.0	0.0-1.0	Long	Occasional	---	Rare
			Dec	0.0-3.0	>6.0	---	---	---	---	---

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
LzC: Lopeno-----	A	Very low	Jan-Apr	3.0-5.0	>6.0	---	---	None	---	---
			May	3.0-5.0	>6.0	---	---	None	---	Very rare
			Jun-Aug	---	---	---	---	None	---	Very rare
			Sept-Nov	3.0-5.0	>6.0	---	---	None	---	Very rare
			Dec	3.0-5.0	>6.0	---	---	None	---	---
Sauz-----	C/D	High	Jan-Apr	0.0-3.0	>6.0	---	---	None	---	---
			May	0.0-3.0	>6.0	---	---	None	---	Rare
			Sept-Nov	0.0-3.0	>6.0	---	---	None	---	Rare
			Dec	0.0-3.0	>6.0	---	---	None	---	---
MaA: Madre-----	D	Negligible	Jan-May	0.0-0.5	>6.0	---	---	---	---	---
			Jun-Aug	0.0-0.5	>6.0	---	---	---	Brief	Occasional
			Sept-Nov	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
			Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	---
Malaquite-----	D	Negligible	Jan-May	0.0-0.5	>6.0	---	---	---	---	---
			Jun-Aug	0.0-0.5	>6.0	---	---	---	Brief	Occasional
			Sept-Nov	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
			Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	---
MnB: Madre-----	D	Negligible	Jan-May	0.0-0.5	>6.0	---	---	---	---	---
			Jun-Aug	0.0-0.5	>6.0	---	---	---	Brief	Occasional
			Sept-Nov	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
			Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	---
Panam-----	A	Negligible	Jan-May	2.5-4.0	>6.0	---	---	None	---	---
			Jun-Nov	2.5-4.0	>6.0	---	---	None	Very brief	Occasional
			Dec	2.5-4.0	>6.0	---	---	None	---	---
MoA: Montealto-----	D	Negligible	Jan-May	0.0-3.0	>6.0	0.0-1.0	Long	Occasional	---	None
			Jun-Aug	---	---	---	---	---	---	None
			Sept-Dec	0.0-3.0	>6.0	0.0-1.0	Long	Occasional	---	None
MsA: Mustang-----	D	Negligible	Jan-May	0.0-0.5	>6.0	---	---	---	---	---
			Jun-Aug	0.0-0.5	>6.0	---	---	---	Brief	Occasional
			Sept-Nov	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
			Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	---

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
MtB: Mustang-----	D	Negligible	Jan-May	0.0-0.5	>6.0	---	---	---	---	---
			Jun-Aug	0.0-0.5	>6.0	---	---	---	Brief	Occasional
			Sept-Nov	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
			December	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	---
Padre-----	A	Very low	Jan-May	2.5-4.0	>6.0	---	---	None	---	---
			Jun-Nov	2.5-4.0	>6.0	---	---	None	Very brief	Occasional
			Dec	2.5-4.0	>6.0	---	---	None	---	---
MuB: Mustang-----	D	Negligible	Jan-May	0.0-0.5	>6.0	---	---	---	---	---
			Jun-Aug	0.0-0.5	>6.0	---	---	---	Brief	Occasional
			Sept-Nov	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
			Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	---
Panam-----	A	Negligible	Jan-May	2.5-4.0	>6.0	---	---	None	---	---
			Jun-Nov	2.5-4.0	>6.0	---	---	None	Very brief	Occasional
			Dec	2.5-4.0	>6.0	---	---	None	---	---
NaA: Narta-----	D	Medium	Jan-May	0.0-0.5	0.5-1.0	---	---	None	---	---
			Jul-Aug	---	---	---	---	None	---	Rare
			Sept-Oct	0.0-0.5	0.5-1.0	---	---	None	---	Rare
			Nov-Dec	0.0-0.5	0.5-1.0	---	---	None	---	---
NeA: Novillo-----	D	Negligible	Jan-May	0.0-0.5	>6.0	0.0-2.5	Very long	Frequent	---	---
			Jun-Nov	0.0-0.5	>6.0	0.0-2.5	Very long	Frequent	---	Rare
			Dec	0.0-0.5	>6.0	0.0-2.5	Very long	Frequent	---	---
NfC: Nueces-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
NsC: Nueces-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Sarita-----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
OfA: Orelia-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
PaA: Padrones-----	C	Low	Jan-Dec	Ft ---	Ft ---	Ft ---	---	None	---	None
PbA: Palobia-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
PbB: Palobia-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
PeB: Palobia-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
PfA: Palobia-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Colmena-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
PfB: Palobia-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
Colmena-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
PgA: Papagua-----	C/D	Negligible	Jan-May Jun-Aug Sept-Dec	0.0 --- 0.0	>6.0 --- >6.0	0.0-1.0 --- 0.0-1.0	Long --- Long	Occasional --- Occasional	--- --- ---	None None None
PIT: Pits, quarry-----	---	---	Jan-Dec	---	---	---	---	---	---	---
PnC: Point Isabel-----	C	High	Jun-Oct	---	---	---	---	None	---	Rare
PoB: Portalto-----	A	Negligible	Jun-Oct	---	---	---	---	None	---	Rare
PrC: Potrero-----	B	Negligible	Jan-Apr May Jun-Nov Dec	1.0-3.0 1.0-3.0 --- 1.0-3.0	>6.0 >6.0 --- >6.0	--- --- --- ---	--- --- --- ---	None None None None	--- --- --- ---	--- Very rare Very rare ---

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Lopeno-----	A	Very low	Jan-Apr	3.0-5.0	>6.0	---	---	None	---	---
			May	3.0-5.0	>6.0	---	---	None	---	Very rare
			Jun-Aug	---	---	---	---	None	---	Very rare
			Sept-Nov	3.0-5.0	>6.0	---	---	None	---	Very rare
			Dec	3.0-5.0	>6.0	---	---	None	---	---
Noria-----	A/D	Negligible	Jan-Apr	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	---
			May	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	Rare
			Jun-Aug	---	---	---	---	---	---	Rare
			Sept-Nov	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	Rare
			Dec	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	---
PtB: Premont-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
QuA: Quiteria-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
RaB: Ramita-----	C/D	Negligible	Jan-May	0.5-3.0	>6.0	---	---	None	---	None
			Jun-Aug	---	---	---	---	None	---	None
			Sept-Dec	0.5-3.0	>6.0	---	---	None	---	None
RbB: Ramita-----	C/D	Negligible	Jan-May	0.5-3.0	>6.0	---	---	None	---	None
			Jun-Aug	---	---	---	---	None	---	None
			Sept-Dec	0.5-3.0	>6.0	---	---	None	---	None
Bordas-----	C/D	Negligible	Jan-May	0.0-4.1	>6.0	0.0-1.0	Long	Occasional	---	None
			Jun-Aug	---	---	---	---	---	---	None
			Sept-Dec	0.0-4.1	>6.0	0.0-1.0	Long	Occasional	---	None
RoB: Rockport-----	A	Negligible	Jan-May	3.0-6.0	>6.0	---	---	---	---	---
			Jun-Oct	3.0-6.0	>6.0	---	---	---	---	Rare
			Nov-Dec	3.0-6.0	>6.0	---	---	---	---	---
SA: Salt flats, very frequently flooded-----	---	Negligible	Jan-Dec	---	---	---	---	None	Brief	Very frequent

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
SF: Salt flats, ponded-----	---	Negligible	May Jun-Oct Nov	---	---	---	---	---	---	Rare Rare Rare
SnC: Sarita-----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
SrC: Sarita-----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
Cayo-----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
SsC: Sarita-----	A	Negligible	Jan-Dec	---	---	---	---	None	---	None
Topo-----	A/D	Negligible	Jan-May Jun-Aug Sept-Dec	0.0-2.0 --- 0.0-2.0	>6.0 --- >6.0	0.0-0.5 --- 0.0-0.5	Long --- Long	Frequent --- Frequent	--- --- ---	None None None
StA: Satatton-----	D	Negligible	Jan-Mar Apr-May Jun-Dec	0.0-1.5 0.0-1.5 0.0-1.5	>6.0 >6.0 >6.0	--- --- ---	--- --- ---	None None None	Brief --- Brief	Frequent --- Frequent
SuA: Sauce1-----	B/D	Negligible	Jan-Feb Mar-Apr May-Nov Dec	0.0-3.0 0.0-3.0 0.0-3.0 0.0-3.0	>6.0 >6.0 >6.0 >6.0	--- 0.0-1.0 0.0-1.0 ---	--- Long Long ---	--- Occasional Occasional ---	--- --- --- ---	--- --- Rare ---
SxB: Sauce1-----	B/D	Negligible	Jan-Feb Mar-Apr May-Nov Dec	0.0-3.0 0.0-3.0 0.0-3.0 0.0-3.0	>6.0 >6.0 >6.0 >6.0	--- 0.0-1.0 0.0-1.0 ---	--- Long Long ---	--- Occasional Occasional ---	--- --- --- ---	--- --- Rare ---
Potrero-----	B	Negligible	Jan-Apr May Jun-Aug Sept-Nov Dec	1.0-3.0 1.0-3.0 --- 1.0-3.0 1.0-3.0	>6.0 >6.0 --- >6.0 >6.0	--- --- --- --- ---	--- --- --- --- ---	None None None None None	--- --- --- --- ---	--- Very rare Very rare Very rare ---

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
SyA: Sauz-----	C/D	High	Jan-Apr	0.0-3.0	>6.0	---	---	None	---	---
May			0.0-3.0	>6.0	---	---	None	---	Rare	
Jun-Aug			---	---	---	---	None	---	Rare	
Sept-Nov			0.0-3.0	>6.0	---	---	None	---	Rare	
Dec			0.0-3.0	>6.0	---	---	None	---	---	
SzA: Sauz-----	C/D	High	Jan-Apr	0.0-3.0	>6.0	---	---	None	---	---
May			0.0-3.0	>6.0	---	---	None	---	Rare	
Jun-Aug			---	---	---	---	None	---	Rare	
Sept-Nov			0.0-3.0	>6.0	---	---	None	---	Rare	
Dec			0.0-3.0	>6.0	---	---	None	---	---	
Sauce1-----	B/D	Negligible	Jan-Feb	0.0-3.0	>6.0	---	---	---	---	---
Mar-Apr			0.0-3.0	>6.0	0.0-1.0	Long	Occasional	---	---	
May-Nov			0.0-3.0	>6.0	0.0-1.0	Long	Occasional	---	Rare	
Dec			0.0-3.0	>6.0	---	---	---	---	---	
TaA: Tatton-----	D	Negligible	Jan-Dec	0.0-0.8	>6.0	---	---	None	Very brief	Very frequent
TBA: Tatton-----	D	Negligible	Jan-Dec	0.0-0.8	>6.0	---	---	None	Long	Very frequent
Beaches, washover fan-----	---	---	Jan-Dec	0.0-0.8	>6.0	---	---	None	Long	Very frequent
ToA: Topo-----	A/D	Negligible	Jan-Apr	0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	---
May			0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	Rare	
Jun-Aug			---	---	---	---	---	---	Rare	
Sept-Nov			0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	Rare	
Dec			0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	---	
TsA: Topo-----	A/D	Negligible	Jan-Apr	0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	---
May			0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	Rare	
Jun-Aug			---	---	---	---	---	---	Rare	
Sept-Nov			0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	Rare	
Dec			0.0-2.0	>6.0	0.0-0.5	Long	Frequent	---	---	

Table 28.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Sauce1-----	B/D	Negligible	Jan-Feb	0.0-3.0	>6.0	---	---	---	---	---
			Mar-Apr	0.0-3.0	>6.0	0.0-1.0	Long	Occasional	---	---
			May-Nov	0.0-3.0	>6.0	0.0-1.0	Long	Occasional	---	Rare
			Dec	0.0-3.0	>6.0	---	---	---	---	---
TwA: Twinpalms-----	B	Low	Jan-May	2.5-5.0	>6.0	---	---	None	---	---
			Jun-Nov	2.5-5.0	>6.0	---	---	None	Brief	Occasional
			Dec	2.5-5.0	>6.0	---	---	None	---	---
Yarborough-----	D	Negligible	Jan-Mar	0.8-2.0	>6.0	---	---	None	Very brief	Frequent
			Apr-May	0.8-2.0	>6.0	---	---	None	---	---
			Jun-Dec	0.8-2.0	>6.0	---	---	None	Very brief	Frequent
VaA: Victine-----	D	High	Jan-Dec	---	---	---	---	None	---	None
VcA: Victoria-----	D	High	Jan-Dec	---	---	---	---	None	---	None
VcB: Victoria-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
W: Water-----	---	---	Jan-Dec	---	---	---	---	---	---	---
YaA: Yarborough-----	D	Negligible	Jan-Dec	0.8-2.0	>6.0	---	---	None	Very brief	Very frequent
YtC: Yturria-----	A	Very low	Jan-Dec	---	---	---	---	None	---	None

Table 29.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer			Risk of corrosion		
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
AaA: Aransas	---	In	In	---	High	High
AcC: Arenisco	---	---	---	---	Low	Low
AnC: Arenisco	---	---	---	---	Low	Low
Topo	---	---	---	---	High	Moderate
ArA: Arrada	Salic	0-10	---	Noncemented	High	High
AsC: Arrada	Salic	0-10	---	Noncemented	High	High
Lalinda	---	---	---	---	High	High
BA: Baffin	Salic	0-10	---	Noncemented	High	High
BbA: Banquete	---	---	---	---	High	Moderate
BdA: Barrada	Salic	0-10	---	Noncemented	High	High
BE1: Beaches	---	---	---	---	---	---
BE2: Beaches	---	---	---	---	---	---
BE3: Beaches	---	---	---	---	---	---
BE4: Beaches	---	---	---	---	---	---
BrA: Bordas	---	---	---	---	High	Moderate
CaA: Calallen	---	---	---	---	Moderate	Low
CeA: Carreta	---	---	---	---	High	High
ChA: Cayo	---	---	---	---	High	High
CkA: Clareville	---	---	---	---	High	Moderate

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top In	Thickness In	Hardness	Uncoated steel	Concrete
CkB: Clareville	---	---	---	---	High	Moderate
CmA: Colmena	---	---	---	---	Moderate	Low
CmB: Colmena	---	---	---	---	Moderate	Low
CnA: Crane11	---	---	---	---	High	High
CnB: Crane11	---	---	---	---	High	High
CrA: Czar	---	---	---	---	Moderate	Moderate
CrB: Czar	---	---	---	---	Moderate	Moderate
CzA: Czar	---	---	---	---	Moderate	Moderate
DaE: Daggerhill	---	---	---	---	Low	Low
DdE: Daggerhill	---	---	---	---	Low	Low
Mustang	---	---	---	---	Moderate	Moderate
DeE: Daggerhill	---	---	---	---	Low	Low
Satatton	Salic	0-10	---	Noncemented	High	High
DfB: Delfina	---	---	---	---	Moderate	Moderate
DnB: Delfina	---	---	---	---	Moderate	Moderate
DrA: Dietrich	Natric	10-14	---	Noncemented	High	Moderate
DsB: Dietrich	Natric	25-37	---	Noncemented	Moderate	Low
DTE: Dune land	---	---	---	---	---	---
DU: Dune land	---	---	---	---	---	---
DXC: Dune land	---	---	---	---	---	---
Satatton	Salic	0-10	---	Noncemented	High	High

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top In	Thickness In	Hardness	Uncoated steel	Concrete
EdA: Edroy	---	---	---	---	High	Moderate
EsA: Estella	---	---	---	---	High	Moderate
FaC: Falfurrias	---	---	---	---	Moderate	Moderate
FaE: Falfurrias	---	---	---	---	Moderate	Moderate
FmC: Falfurrias	---	---	---	---	Moderate	Moderate
Atiras	---	---	---	---	Moderate	Moderate
Medanito	---	---	---	---	Moderate	Moderate
FoD: Falfurrias	---	---	---	---	Moderate	Moderate
Cayo	---	---	---	---	High	High
FtD: Falfurrias	---	---	---	---	Moderate	Moderate
Topo	---	---	---	---	High	Moderate
GeB: Gertrudis	---	---	---	---	Moderate	Moderate
GhE: Greenhill	---	---	---	---	Low	Moderate
GmE: Greenhill	---	---	---	---	Low	Moderate
Mustang	---	---	---	---	Moderate	Low
GRE: Riverwash	---	---	---	---	---	---
Gullied land	---	---	---	---	---	---
IcA: Incell	---	---	---	---	Moderate	Moderate
LaC: Lalinda	---	---	---	---	High	High
LpC: Lopeno	---	---	---	---	Moderate	Moderate
Potrero	---	---	---	---	High	Moderate
Arenisco	---	---	---	---	Low	Low

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Risk of corrosion		
	Kind	Depth to top In	Thickness In	Hardness	Uncoated steel	Concrete
LsC: Lopeno	---	---	---	---	Moderate	Moderate
Sauce1	Salic	0-10	---	Noncemented	High	High
LzC: Lopeno	---	---	---	---	Moderate	Moderate
Sauz	Natric	3-14	---	Noncemented	High	High
MaA: Madre	---	---	---	---	Moderate	Moderate
Malaquite	Salic	0-39	---	Noncemented	High	High
MnB: Madre	---	---	---	---	Moderate	Moderate
Panam	---	---	---	---	Moderate	Low
MoA: Montealto	---	---	---	---	High	High
MsA: Mustang	---	---	---	---	Moderate	Low
MtB: Mustang	---	---	---	---	Moderate	Low
Padre	---	---	---	---	Low	Moderate
MuB: Mustang	---	---	---	---	Moderate	Moderate
Panam	---	---	---	---	Moderate	Low
NaA: Narta	---	---	---	---	High	High
NeA: Novillo	---	---	---	---	Moderate	Moderate
NfC: Nueces	---	---	---	---	Moderate	Low
NsC: Nueces	---	---	---	---	Moderate	Low
Sarita	---	---	---	---	Moderate	Moderate
OfA: Orelia	---	---	---	---	Moderate	Moderate
PaA: Padrones	Natric	20-39	---	Noncemented	Moderate	Moderate
PbA: Palobia	Natric	4-19	---	Noncemented	High	High

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
PbB: Palobia	Natric	4-19	---	Noncemented	High	High
PeB: Palobia	Natric	8-19	---	Noncemented	High	High
PfA: Palobia	Natric	8-19	---	Noncemented	High	High
Colmena	---	---	---	---	Moderate	Low
PfB: Palobia	Natric	8-19	---	Noncemented	High	High
Colmena	---	---	---	---	Moderate	Low
PgA: Papagua	---	---	---	---	High	Low
PIT: Pits, quarry	---	---	---	---	---	---
PnC: Point Isabel	---	---	---	---	High	High
PoB: Portalto	---	---	---	---	Moderate	Moderate
PrC: Potrero	---	---	---	---	High	Moderate
Lopeno	---	---	---	---	Moderate	Moderate
Noria	---	---	---	---	High	High
PtB: Premont	---	---	---	---	Moderate	Moderate
QuA: Quiteria	Natric	5-19	---	Noncemented	High	High
RaB: Ramita	Natric	4-18	---	Noncemented	High	High
RbB: Ramita	Natric	4-18	---	Noncemented	High	High
Bordas	---	---	---	---	High	Moderate
RoB: Rockport	---	---	---	---	Moderate	Moderate
SA: Salt flats, very frequently flooded	---	---	---	---	---	---
SF: Salt flats, ponded	---	---	---	---	---	---

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top In	Thickness In	Hardness	Uncoated steel	Concrete
SnC: Sarita	---	---	---	---	Moderate	Moderate
SrC: Sarita	---	---	---	---	Moderate	Moderate
Cayo	---	---	---	---	High	High
SsC: Sarita	---	---	---	---	Moderate	Moderate
Topo	---	---	---	---	High	Moderate
StA: Satatton	Salic	0-10	---	Noncemented	High	High
SuA: Sauce1	Salic	0-10	---	Noncemented	High	High
SxB: Sauce1	Salic	0-10	---	Noncemented	High	High
Potrero	---	---	---	---	High	Moderate
SyA: Sauz	Natric	3-14	---	Noncemented	High	High
SzA: Sauz	Natric	3-14	---	Noncemented	High	High
Sauce1	Salic	0-10	---	Noncemented	High	High
TaA: Tatton	Salic	0-10	---	Noncemented	High	High
TBA: Tatton	Salic	0-10	---	Noncemented	High	High
Beaches, washover fan	---	---	---	---	---	---
ToA: Topo	---	---	---	---	High	Moderate
TsA: Topo	---	---	---	---	High	Moderate
Sauce1	Salic	0-10	---	Noncemented	High	High
TwA: Twinpalms	---	---	---	---	Moderate	Low
Yarborough	Salic	0-30	---	Noncemented	High	High
VaA: Victine	---	---	---	---	High	Moderate
VcA: Victoria	---	---	---	---	High	High

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
VcB: Victoria	---	In	In	---	High	High
W: Water	---	---	---	---	---	---
YaA: Yarborough	Salic	0-30	---	Noncemented	High	High
YtC: Yturria	---	---	---	---	Moderate	Low

Table 30.--Physical Analyses of Selected Soils

(The abbreviation "COLE" means coefficient of linear extensibility. Dashes indicate that data were not available.)

Soil name and sample number	Depth	Horizon	Particle-size Distribution										COLE	Bulk Density		Water Content	
			Sand					Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay		1/3-bar	Oven Dry	1/3-bar	15-bar
			Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)										
(Percent)													cm/cm	g/cc	g/cc	Pct	Pct
Arenisco (2,3) 98TX-261-007																	
6347	0-10	A1	0.1	0.3	2.6	88.9	5.4	97.3	0.4	0.4	1.7	2.3	0.021	1.40	1.49	25.0	---
6348	10-35	A2	---	0.2	2.7	90.3	4.6	97.8	0.0	0.0	1.5	2.2	0.019	1.37	1.45	26.8	---
6349	35-48	C1	---	0.1	1.9	91.7	4.8	98.5	0.0	0.0	0.9	1.5	0.038	1.44	1.61	23.7	---
6350	48-64	C2	---	---	1.9	92.1	4.6	98.6	0.0	0.0	1.3	1.4	0.024	1.36	1.46	26.6	---
6351	64-80	C3	---	---	2.0	92.4	4.3	98.7	0.0	0.0	1.2	1.3	0.007	1.39	1.42	22.6	---
Atiras (2,3) 98TX-261-005																	
6329	0-8	A1	0.1	0.4	2.8	84.0	8.9	96.2	1.6	1.6	1.6	2.2	0.021	1.39	1.48	29.8	---
6330	8-17	A2	---	---	2.2	85.5	9.1	96.8	0.6	1.2	1.0	2.0	0.014	1.41	1.47	27.7	---
6331	17-28	C1	---	---	2.0	86.6	8.9	97.5	0.6	0.6	1.3	1.9	0.000	1.44	1.44	21.3	---
6332	28-45	C2	---	---	2.2	88.8	7.7	98.7	---	---	1.0	1.3	0.007	1.45	1.48	24.7	---
6333	45-58	C3	---	---	2.3	90.4	6.4	99.1	---	---	0.6	0.9	0.003	1.48	1.50	24.4	---
6334	58-61	2Ab	---	---	0.9	69.6	18.6	89.1	0.7	4.3	4.9	6.6	0.015	1.51	1.58	22.1	---
6335	61-67	2Bwb1	---	---	1.2	67.7	17.2	86.1	0.9	4.5	7.2	9.4	0.015	1.55	1.62	20.9	---
6336	67-73	2Bwb2	---	---	1.8	63.4	16.2	81.4	1.7	5.6	10.1	13.0	0.026	1.61	1.74	19.7	---
6337	73-80	2Bwb3	---	---	2.0	67.2	14.0	83.2	1.2	3.8	10.4	13.0	0.021	1.57	1.67	16.9	---
Carreta (1,3) 81TX-273-001																	
81P04998	0-3	Ap1	0.1	0.1	0.7	23.0	19.6	43.5	9.9	23.3	17.7	33.2	0.045	1.41	1.61	22.5	14.9
81P04999	3-7	Ap2	0.1	0.1	0.7	24.7	20.3	45.9	8.1	22.0	18.0	32.1	0.052	1.34	1.56	25.1	14.7
81P05000	7-11	Btnz1	0.2	tr	0.6	18.1	16.5	35.4	9.4	21.7	21.5	42.9	0.078	1.38	1.73	29.9	19.6
81P05001	11-21	Btnz2	0.1	0.1	0.5	13.9	11.4	26.0	7.4	16.3	29.3	57.7	0.123	1.20	1.70	38.8	30.4
81P05002	21-31	Btknyz1	0.4	0.3	0.8	16.1	12.1	29.7	9.0	18.6	26.3	51.7	0.085	1.24	1.59	34.5	24.7
81P05003	31-38	Btknyz2	1.4	0.6	0.8	16.2	12.3	31.3	9.0	18.6	21.9	50.1	0.065	1.27	1.54	31.6	22.6
81P05004	38-49	Btkny1	1.0	0.5	0.7	15.8	13.1	31.1	8.5	18.7	---	50.2	0.074	1.32	1.64	32.3	23.0
81P05005	49-67	Btkny2	1.0	0.5	0.6	14.0	13.9	30.0	9.8	19.8	---	50.2	0.073	1.35	1.67	32.3	25.5
81P05006	67-80	Btkny3	0.3	0.2	0.4	13.9	14.6	29.4	16.6	26.7	---	43.9	0.104	1.27	1.71	36.5	22.6

Table 30.--Physical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size Distribution										Bulk Density		Water Content			
			Sand						Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	1/3-bar	Oven Dry	1/3-bar	15-bar
			Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)											
	In		(Percent)										cm/cm	g/cc	g/cc	Pct	Pct	
Cayo (2,3)																		
88TX-261-006																		
3362	0-5	A1	0.1	0.1	1.3	62.0	10.2	73.7	6.4	11.8	5.7	14.5	0.027	1.43	---	25.4	---	
3363	5-12	A2	0.2	0.3	2.2	60.7	9.2	72.6	5.0	10.3	8.4	17.1	0.028	1.29	---	31.3	---	
3364	12-19	Bk	0.1	0.3	1.8	58.4	8.8	69.4	7.3	11.2	8.6	19.4	0.021	1.23	---	29.1	---	
3365	19-28	Bknz1	0.2	0.4	1.4	55.3	8.9	66.2	9.4	12.3	7.5	21.5	0.014	1.42	---	20.4	---	
3366	28-41	Bknz2	0.3	0.5	1.4	59.2	8.9	70.3	8.6	12.4	7.0	17.3	0.013	1.51	---	16.8	---	
3367	41-51	2Bknz3	0.3	0.4	1.6	64.3	8.8	75.4	5.1	7.3	10.2	17.3	0.022	1.5	---	20.1	---	
3368	51-61	2Bknz4	0.0	0.2	1.8	69.2	7.6	78.8	3.8	5.3	9.6	15.9	0.034	1.43	---	24.3	---	
3369	61-80	2Bnz	0.2	0.4	2.8	70.4	9.0	82.8	1.2	1.4	12.0	15.8	0.017	1.52	---	18.4	---	
Colmena (2,4)																		
S06TX-273-002																		
7088	0-5	A	0.1	0.3	2.4	52.0	25.8	80.6	4.8	11.4	4.1	8.0	0.013	1.45	1.50	22.8	---	
7089	5-11	Bt1	---	0.2	2.2	51.5	24.6	78.5	3.8	10.6	6.9	10.9	0.024	1.32	1.42	24.2	---	
7090	11-22	Bt2	---	0.2	2.1	46.0	23.5	71.8	3.7	9.7	14.1	18.5	0.037	1.38	1.54	26.1	---	
7091	22-39	Bt3	---	0.1	1.9	42.4	24.7	69.1	3.0	9.1	17.5	21.8	0.043	1.48	1.67	24.3	---	
7092	39-50	2Btk1	---	0.1	1.6	39.9	23.6	65.2	4.7	12.1	15.5	22.7	0.043	1.44	1.63	24.8	---	
7093	50-61	2Btk2	0.2	0.3	1.9	37.7	23.2	63.3	9.4	16.5	12.3	20.2	0.031	1.51	1.66	20.4	---	
7094	61-80	2Btk3	0.1	0.1	1.8	37.6	22.2	61.8	10.1	17.0	12.7	21.2	0.036	1.55	1.72	21.3	---	
Cranell (1,5)																		
84TX-273-001																		
84P03060	0-4	Ap	---	---	1.4	27.5	18.7	47.6	9.1	20.6	---	31.8	0.054	1.29	1.51	27.7	14.1	
84P03061	4-16	A	---	---	0.9	23.6	19.2	43.7	9.4	21.7	---	34.6	0.054	1.34	1.57	27.0	15.6	
84P03062	16-24	Bk1	---	0.1	0.9	18.3	16.6	35.9	13.4	24.1	---	40.0	0.073	1.49	1.84	26.0	17.5	
84P03063	24-34	Bk2	0.2	0.1	0.8	18.3	15.5	34.9	13.2	23.8	---	41.3	0.079	1.48	1.86	26.6	18.7	
84P03064	34-41	Bk3	---	---	0.7	16.7	14.5	31.9	13.9	24.6	---	43.5	0.103	1.35	1.81	33.4	20.5	
84P03065	41-80	Bk4	0.4	0.2	0.5	11.8	14.6	27.5	17.4	29.2	---	43.3	0.069	1.39	1.70	29.0	20.6	
Czar (2,3)																		
S06TX273-003																		
7095	0-7	A	---	0.4	2.6	44.7	26.3	74.0	6.4	13.8	6.5	12.2	0.035	1.31	1.45	28.1	---	
7096	7-13	Bt1	---	0.2	2.1	42.5	24.5	69.3	5.4	12.3	12.3	18.4	0.034	1.34	1.48	22.9	---	
7097	13-27	Bt2	---	0.2	1.9	38.9	23.6	64.6	5.1	12.3	17.3	23.1	0.043	1.39	1.58	25.1	---	
7098	27-40	Bt3	---	0.1	1.5	38.3	25.0	64.9	4.3	11.5	18.1	23.6	0.051	1.53	1.78	22.4	---	
7099	40-61	Bt4	---	0.1	1.4	41.1	25.6	68.2	3.1	9.7	17.1	22.1	0.047	1.44	1.65	23.6	---	
7100	61-69	2Btk1	---	0.1	1.2	36.1	24.5	61.9	5.5	12.4	18.3	25.7	0.053	1.39	1.62	26.6	---	
7101	69-80	2Btk2	0.5	0.2	1.3	32.7	23.3	58.0	9.4	16.6	15.8	25.4	0.048	1.34	1.54	29.9	---	

Table 30.--Physical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size Distribution										Bulk Density		Water Content			
			Sand					Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	1/3-bar	Oven Dry	1/3-bar	15-bar	
			Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)											
			(Percent)										cm/cm	g/cc	g/cc	Pct	Pct	
Estella (2,3) 00TX-261-005	In																	
6681	0-10	A1	---	0.1	3.0	78.0	10.8	91.9	2.5	5.4	1.8	2.7	0.009	1.41	1.45	22.6	---	
6682	10-17	A2	---	0.1	2.9	79.6	10.8	93.4	2.0	3.9	1.9	2.7	0.007	1.39	1.42	24.5	---	
6683	17-36	E1	---	---	2.7	80.5	10.3	93.5	1.8	3.6	2.0	2.9	0.000	1.50	1.5	22.8	---	
6684	36-57	E2	---	---	2.5	80.7	9.7	92.9	1.9	3.3	1.1	3.8	0.011	1.51	1.56	19.2	---	
6685	57-73	2Btg1	---	---	2.2	72.0	8.6	82.8	3.5	4.6	8.6	12.6	0.023	1.56	1.67	16.4	---	
6041	73-80	2Btg2	---	---	2.1	69.7	9.2	81.0	1.2	1.8	13.4	17.2	0.033	1.47	1.62	18.4	---	
Falfurrias (2,6) 87TX-261-004																		
3206	0-8	A1	---	0.1	2.7	86.0	7.7	96.5	0.9	1.2	0.9	2.4	0.007	1.48	---	26.8	---	
3207	8-25	A2	---	0.0	2.9	86.9	6.7	96.6	0.8	1.4	0.7	2.0	0.005	1.46	---	23.8	---	
3208	25-51	C1	---	---	2.0	87.1	8.2	97.3	0.9	1.0	0.7	1.8	---	---	---	---	---	
3209	51-80	C2	---	---	1.6	87.2	8.6	97.4	1.0	1.5	0.7	1.1	0.016	1.42	---	25.8	---	
Gertrudis (2,3) S06TX-273-004																		
7102	0-7	A1	1.5	0.4	1.5	31.6	29.4	64.4	8.0	19.1	8.9	16.5	0.029	1.33	1.45	28.3	---	
7103	7-17	A2	0.1	0.3	1.1	28.5	28.9	58.9	8.6	21.6	11.2	19.5	0.026	1.26	1.36	26.8	---	
7104	17-25	Bk1	0.1	0.2	1.2	26.5	27.1	55.1	10.2	23.1	12.1	21.8	0.032	1.21	1.33	25.8	---	
7105	25-40	Bk2	0.1	0.2	1.0	22.7	24.6	48.6	13.0	26.6	12.4	24.8	0.030	1.17	1.28	26.4	---	
7106	40-50	2Bk1	0.1	0.1	0.7	16.8	20.8	38.5	18.4	31.8	14.4	29.7	0.051	1.17	1.36	29.6	---	
7107	50-68	2Bk2	0.1	0.1	0.6	12.9	18.8	32.5	24.4	38.3	14.6	29.2	0.050	1.20	1.39	30.5	---	
7108	68-80	2Bk3	0.1	0.1	0.4	17.8	24.1	42.5	20.2	35.1	13.9	22.4	0.052	1.22	1.42	30.7	---	
Greenhill (1,3) S03TX-273-001																		
03N04115	0-10	A1	0.1	0.1	1.1	93.3	4.6	99.2	0.2	0.8	---	---	0.009	1.44	1.48	---	---	
03N04116	10-28	A2	---	tr	0.4	94.2	5.1	99.7	0.2	0.2	---	0.1	---	---	---	---	---	
03N04117	28-43	C1	---	tr	1.0	92.4	6.3	99.7	0.1	0.1	---	0.2	---	---	---	---	---	
03N04118	43-60	C2	---	tr	0.4	96.4	2.8	99.6	0.4	0.4	---	---	---	---	---	---	---	
03N04119	60-80	C3	---	---	0.5	95.0	3.9	99.4	0.5	0.5	---	0.1	---	---	---	---	---	
Lopeno (2,7) 88TX-261-003																		
3339	0-7	A	---	---	3.0	84.3	8.5	95.8	0.5	0.9	1.1	3.3	---	---	---	---	---	
3340	7-13	C1	---	0.1	4.4	84.5	8.1	97.1	0.8	1.3	1.1	1.6	0.015	1.34	---	26.8	---	
3341	13-18	C2	---	---	3.6	85.1	8.7	97.4	0.8	1.0	1.2	1.6	0.000	1.53	---	19.4	---	
3342	18-30	AB	---	0.1	1.9	80.2	13.4	95.6	1.5	2.5	1.2	1.9	0.005	1.47	---	18.5	---	
3343	30-37	EB1	---	---	1.3	79.0	16.3	96.6	1.4	1.9	0.6	1.5	0.007	1.44	---	22.8	---	
3344	37-57	EB2	---	---	1.3	79.8	15.6	96.7	1.4	1.9	0.9	1.4	0.000	1.47	---	25.7	---	
3345	57-61	2Agb	---	---	1.3	76.0	14.1	91.4	1.5	2.0	4.1	6.6	0.002	1.71	---	17.2	---	
3346	61-72	2Bgb1	---	0.1	1.3	71.4	12.4	85.2	1.8	2.1	9.6	12.8	0.032	1.60	---	13.0	---	
3347	72-80	2Bgb2	---	0.1	1.2	69.9	11.2	82.4	1.8	2.6	9.6	15.0	0.016	1.65	---	13.7	---	

Table 30.--Physical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size Distribution										COLE	Bulk Density		Water Content		
			Sand					Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay		1/3-bar	Oven Dry	1/3-bar	15-bar	
			Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)											
(Percent)													cm/cm	g/cc	g/cc	Pct	Pct	
Malaquite (1,3) S03TX-273-004	In																	
03N04137	0-5	Anz	0.2	0.5	10.5	80.9	6.1	98.2	0.5	1.0	---	0.8	0.017	1.36	1.43	9.5	2.3	
03N04138	5-12	Cnzzg1	tr	0.3	8.3	86.9	2.8	98.3	0.6	1.6	---	0.1	0.033	1.47	1.62	8.1	1.2	
03N04139	12-21	Cnzzg2	tr	tr	5.3	89.6	4.0	98.9	---	1.1	---	---	0.022	1.51	1.61	5.4	0.6	
03N04140	21-27	Anzbb	---	0.1	6.1	85.8	5.3	97.3	0.3	1.2	---	1.5	---	---	---	---	1.3	
03N04141	27-38	Cnzzgb1	1.3	1.8	18.3	70.5	5.1	97.0	0.2	2.1	---	0.9	---	---	---	---	1.3	
03N04142	38-69	Cnzzgb2	4.1	3.8	18.2	69.5	2.6	98.2	0.3	1.7	---	0.1	---	---	---	---	0.8	
03N04143	69-80	Cnzzgb3	0.8	1.6	10.7	78.6	5.4	97.1	0.8	2.4	---	0.5	---	---	---	---	1.3	
Medanito (2,3) 98TX-261-006																		
6338	0-9	A1	0.1	0.2	4.0	81.6	9.3	95.2	1.5	2.7	1.8	2.1	0.029	1.36	1.48	28.4	---	
6339	9-26	A2	---	0.1	3.7	83.6	8.9	96.3	1.0	1.6	1.2	2.1	0.038	1.34	1.50	30.0	---	
6340	26-32	C	---	0.0	3.1	85.0	9.4	97.5	1.1	1.1	1.4	1.4	0.026	1.35	1.48	27.8	---	
6341	32-36	2Ab	---	0.1	2.6	75.0	10.0	87.7	0.9	0.7	9.2	11.6	0.029	1.56	1.70	21.8	---	
6342	36-42	2Bnb1	---	---	2.3	71.0	13.4	86.7	1.0	1.5	9.5	11.8	0.034	1.51	1.67	22.2	---	
6343	42-51	2Bnb2	---	---	2.4	73.2	6.2	81.8	0.0	0.0	13.1	18.2	0.050	1.53	1.77	22.8	---	
6344	51-59	2Bnb3	---	---	1.6	71.9	6.0	79.5	0.0	0.0	13.5	20.5	0.054	1.47	1.72	25.6	---	
6345	59-73	3BCn1	---	---	1.0	70.7	9.2	80.9	0.3	0.3	15.8	18.7	0.051	1.44	1.67	25.4	---	
6346	73-80	3BCn2	---	---	1.0	75.0	9.2	85.2	0.1	0.1	12.2	14.7	0.044	1.46	1.66	23.5	---	
Mustang (1,3) S03TX-273-003																		
03N04128	0-4	A1	0.1	0.4	3.0	88.5	5.0	97.0	0.9	1.8	---	1.2	0.015	1.27	1.33	12.6	2.4	
03N04129	4-11	A2	tr	0.3	3.9	87.3	7.1	98.6	0.1	0.9	---	0.5	0.007	1.44	1.47	6.7	1.0	
03N04130	11-21	Cg1	---	tr	1.1	95.8	2.4	99.3	0.3	0.6	---	0.1	0.038	1.54	1.72	5.7	0.9	
03N04131	21-34	Cg2	0.1	0.3	4.6	90.0	4.0	99.0	0.2	0.6	---	0.4	0.016	1.47	1.54	5.6	0.9	
03N04132	34-45	Cg3	tr	1.0	9.7	84.4	3.4	98.5	0.4	1.0	---	0.5	---	---	---	---	0.6	
03N04133	45-57	Cg4	0.2	0.5	28.6	67.0	2.1	98.4	0.3	1.6	---	---	---	---	---	---	0.5	
03N04134	57-71	Cg5	0.3	0.4	16.7	79.5	1.9	98.8	---	1.2	---	---	---	---	---	---	0.4	
03N04135	71-80	Cg6	0.4	0.5	14.2	79.9	3.6	98.6	---	1.2	---	0.2	---	---	---	---	0.5	
Noria (2,3) 00TX-261-001																		
6652	0-3	Anz	0.1	0.4	3.6	76.7	8.0	88.8	2.8	6.0	2.4	5.2	0.030	1.39	1.52	29.1	---	
6653	3-7	Cnzzg1	---	0.5	4.5	79.3	8.2	92.5	1.7	4.2	1.7	3.3	0.011	1.52	1.57	23.1	---	
6654	7-21	Cnzzg2	---	0.3	4.0	79.8	8.0	92.1	1.6	4.4	2.1	3.5	0.007	1.52	1.55	20.6	---	
6655	21-33	Cnzzg3	---	---	2.9	82.3	8.1	93.3	1.5	4.1	1.4	2.6	0.008	1.58	1.62	20.3	---	
6656	33-39	Cnzzg4	---	---	2.8	80.1	6.8	89.7	1.5	3.2	3.9	7.1	0.008	1.60	1.64	19.8	---	
6657	39-60	Bnzzgb1	---	---	2.9	74.4	6.8	84.1	1.6	2.5	8.0	13.4	0.016	1.65	1.73	19.3	---	
6658	60-80	Bnzzgb2	---	---	4.0	77.6	6.2	87.8	0.4	1.2	9.1	11.0	0.019	1.58	1.67	22.1	---	

Table 30.--Physical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size Distribution										COLE	Bulk Density		Water Content	
			Sand					Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay		1/3-bar	Oven Dry	1/3-bar	15-bar
			Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)										
(Percent)													cm/cm	g/cc	g/cc	Pct	Pct
Padrones (2,8) 87TX-261-001	In																
3184	0-2	A1	---	---	0.8	60.1	25.6	86.5	2.1	9.7	2.2	3.8	---	---	---	---	---
3185	2-8	A2	---	---	0.9	61.3	25.4	87.6	2.1	8.9	2.0	3.5	0.005	1.38	---	---	---
3186	8-17	E1	---	---	0.9	61.6	26.1	88.6	1.7	7.8	1.8	3.6	0.023	1.41	---	---	---
3187	17-26	E2	---	---	1.0	62.6	25.9	89.5	1.3	7.4	1.7	3.1	0.000	1.47	---	---	---
3188	26-40	2Btgn1	0.1	0.1	1.1	55.3	21.3	77.9	1.0	6.3	10.9	15.8	0.008	1.75	---	---	---
3189	40-46	2Btgn2	0.1	---	0.7	47.2	17.3	65.3	0.6	3.0	25.4	31.7	0.025	1.67	---	---	---
3190	46-53	2Btgn3	---	---	0.7	46.8	16.0	63.5	0.2	1.1	30.3	35.4	0.027	1.54	---	---	---
3191	53-64	2Btn	---	---	0.5	37.0	20.8	58.3	0.9	2.6	35.3	39.1	0.021	1.57	---	---	---
3192	64-80	2BCtn1	---	---	0.6	40.5	24.1	65.2	1.0	5.1	22.7	29.7	0.012	1.65	---	---	---
Palobia (2,9) 87TX-261-002																	
3211	0-4	A1	---	0.2	1.6	56.4	25.7	83.9	4.3	11.0	2.6	5.1	0.005	1.46	---	21.3	---
3212	4-14	A2	---	---	1.2	58.1	25.8	85.1	3.9	10.4	2.3	4.5	0.005	1.44	---	23.3	---
3213	14-19	2Btgn	0.1	0.1	1.6	49.5	21.6	72.9	4.0	9.1	12.3	18.0	0.037	1.55	---	20.5	---
3214	19-25	2Btn1	0.1	0.1	1.3	46.4	18.5	66.4	3.0	6.2	20.9	27.4	0.043	1.55	---	19.5	---
3215	25-31	2Btn2	0.2	0.1	1.0	46.7	18.7	66.7	3.7	5.4	23.5	27.9	0.047	1.49	---	20.2	---
3216	31-44	2Btk1	0.5	0.2	1.0	45.2	18.9	65.8	2.6	4.1	25.0	30.1	0.050	1.47	---	23.8	---
3217	44-60	2Btk2	0.1	0.1	1.1	49.4	24.0	74.7	1.6	3.6	18.9	21.7	0.017	1.56	---	18.1	---
3218	60-80	2Btk3	---	---	0.9	51.7	22.2	74.8	3.0	6.0	15.1	19.2	0.024	1.50	---	20.3	---
Panam (1,3) S01TX-273-002																	
03N04120	0-4	A1	tr	0.1	2.3	90.8	5.5	98.7	0.2	1.1	---	0.2	---	---	---	---	1.2
03N04121	4-9	A2	tr	tr	2.5	90.6	6.0	99.1	0.1	0.8	---	0.1	0.005	1.39	1.41	5.7	1.1
03N04122	9-18	C1	0.1	0.8	5.0	90.7	2.4	99.0	0.2	0.9	---	0.1	0.002	1.37	1.38	5.4	0.9
03N04123	18-30	C2	0.1	0.3	3.1	91.0	4.7	99.2	0.2	0.7	---	0.1	0.004	1.48	1.50	4.8	0.7
03N04124	30-38	C3	tr	0.2	2.5	91.2	5.3	99.2	0.1	0.6	---	0.2	0.067	1.73	2.10	6.4	1.0
03N04125	38-48	Cg1	---	0.1	9.3	85.9	3.8	99.1	---	0.3	---	0.6	0.041	1.63	1.84	4.1	0.6
03N04126	48-60	Cg2	0.5	1.0	13.4	80.9	2.1	97.9	---	0.7	---	1.4	---	---	---	---	0.7
03N04127	60-80	Cg3	1.2	2.3	20.1	73.5	1.5	98.6	0.7	1.2	---	0.2	---	---	---	---	0.6
Potrero (2,3) 88TX-261-004																	
3349	0-8	A	0.1	0.1	2.3	80.0	15.5	98.0	0.4	1.3	0.1	0.7	---	---	---	---	---
3349	8-21	C1	---	0.1	1.8	79.9	14.9	96.7	1.1	1.6	1.1	1.7	0.005	1.43	---	24.6	---
3350	21-32	C2	---	---	1.9	78.1	17.8	97.8	0.4	0.6	0.8	1.6	0.009	1.45	---	26.5	---
3351	32-39	Agb	---	0.1	2.5	73.6	13.0	89.2	1.0	2.2	4.9	8.6	0.008	1.65	---	15.7	---
3352	39-45	Bgb1	---	0.1	2.0	70.9	12.0	85.0	1.3	2.3	9.8	12.7	0.008	1.70	---	14.1	---
3353	45-53	Bgb2	---	0.1	1.7	70.5	11.5	83.8	0.9	2.0	9.6	14.2	0.016	1.66	---	12.7	---
3354	53-80	Bgb3	---	0.1	1.8	71.1	11.1	84.1	0.7	1.4	11.2	14.5	0.022	1.60	---	18.9	---

Table 30.--Physical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size Distribution										COLE	Bulk Density		Water Content			
			Sand					Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay		1/3-bar	Oven Dry	1/3-bar	15-bar		
			Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)												
(Percent)													cm/cm	g/cc	g/cc	Pct	Pct		
Premont (2,3) S06-TX131-001	In																		
7184	0-8	Ap	0.1	0.3	3.0	53.8	24.5	81.7	3.2	3.2	7.1	8.8	---	---	---	---	---	---	
7185	8-16	Bt1	---	0.1	2.6	48.6	22.1	73.4	4.1	4.1	13.8	16.4	0.024	1.51	1.62	21.0	---		
7186	16-22	Bt2	---	0.2	2.6	46.1	20.3	69.2	3.4	3.4	15.2	19.4	0.026	1.49	1.61	23.2	---		
7187	22-34	Bt3	---	0.1	2.6	42.6	20.1	65.4	4.2	4.2	17.1	22.3	0.035	1.55	1.72	20.5	---		
7188	34-37	Btk	0.1	0.2	2.0	37.1	18.6	58.0	5.5	5.5	20.7	29.6	0.048	1.52	1.75	22.2	---		
7189	37-49	2Btk1	0.3	0.3	2.1	36.2	18.6	57.5	7.2	7.2	17.6	27.6	0.035	1.46	1.62	21.9	---		
7190	49-60	2Btk2	0.4	0.3	1.7	35.2	18.9	56.5	12.4	12.4	11.2	22.7	0.015	1.50	1.57	20.5	---		
7191	60-80	2Bk	0.3	0.2	2.0	38.5	18.5	59.5	12.8	12.8	10.9	20.5	0.018	1.49	1.57	20.3	---		
Quiteria (2,10) 98TX-261-004																			
6320	0-4	A1	0.3	0.5	2.5	69.7	16.7	89.7	2.7	6.7	2.4	3.6	0.026	1.38	1.49	28.8	---		
6321	4-11	A2	---	0.1	2.2	70.7	17.3	90.3	2.7	5.8	24.0	3.9	0.015	1.50	1.57	23.2	---		
6322	11-13	Btn1	0.1	0.3	2.2	62.8	15.7	81.1	1.2	4.9	9.6	14.0	0.022	1.65	1.76	18.3	---		
6323	13-17	Btn2	0.1	0.2	1.9	61.7	15.5	79.4	2.0	5.5	10.9	15.1	0.027	1.56	1.69	14.1	---		
6324	17-22	Btn3	---	0.1	1.8	60.7	14.4	77.0	1.8	5.3	13.4	17.7	0.032	1.52	1.67	17.9	---		
6325	22-34	Btn4	---	0.1	1.7	61.4	12.7	75.9	1.3	3.0	16.5	21.1	0.035	1.47	1.63	19.9	---		
6326	34-50	Btny1	0.2	0.1	1.7	57.3	11.9	71.2	1.8	3.3	21.7	25.5	0.032	1.57	1.73	19.5	---		
6327	50-70	Btny2	---	---	1.7	56.6	11.3	69.6	1.4	3.8	22.8	26.6	0.044	1.52	1.73	22.9	---		
6328	70-80	Bck	---	---	1.6	60.2	12.9	74.7	1.8	4.2	18.8	21.7	0.048	1.46	1.68	26.6	---		
Ramita (2,3) 00TX-261-002																			
6659	0-4	A1	---	0.2	3.4	70.8	13.2	87.6	4.1	10.0	0.7	2.4	0.023	1.44	1.54	19.0	---		
6660	4-11	A2	---	---	3.2	70.8	12.9	86.9	4.1	10.4	0.6	2.7	0.000	1.53	1.53	16.9	---		
6661	11-15	E	---	0.1	3.4	71.9	13.0	88.4	3.3	9.4	0.4	2.2	0.000	1.45	1.45	21.0	---		
6662	15-22	Btn1	---	0.1	2.7	61.2	11.3	75.3	3.1	7.9	11.7	16.8	0.013	1.71	1.78	9.6	---		
6663	22-30	Btn2	---	0.1	3.0	56.9	10.3	70.3	1.9	5.6	19.6	24.1	0.020	1.65	1.75	13.5	---		
6664	30-44	Btn3	0.1	0.1	2.6	57.0	10.5	70.3	3.6	6.9	19.0	22.8	0.025	1.58	1.70	18.9	---		
6665	44-55	Btny	0.1	0.1	2.4	54.8	10.7	68.1	2.5	5.5	21.2	26.4	0.031	1.57	1.72	19.7	---		
6666	55-68	2Btkny1	1.3	0.8	3.0	41.2	8.2	54.5	10.8	13.0	17.1	32.5	0.031	1.54	1.69	21.7	---		
6667	68-80	2Btkny2	2.7	1.9	3.5	42.5	8.5	59.1	11.3	13.3	14.6	27.6	0.031	1.57	1.72	21.6	---		
Sarita (2,11) 87TX-261-003																			
3199	0-8	A1	0.1	0.8	4.9	76.8	8.4	91.0	2.2	6.7	0.8	2.4	0.000	1.47	---	24.6	---		
3200	8-23	A2	---	0.2	4.2	77.6	8.8	90.8	1.5	6.2	1.1	3.1	0.005	1.38	---	26.0	---		
3201	23-48	E1	---	0.1	3.0	80.1	9.7	92.9	1.1	4.7	0.8	2.4	0.000	1.43	---	22.6	---		
3202	48-64	E2	---	---	3.2	80.0	9.2	92.4	2.0	5.3	0.5	2.4	0.000	1.55	---	20.9	---		
3203	64-69	2Bt1	---	---	2.9	72.1	7.9	82.9	2.6	5.7	7.0	11.4	0.002	1.66	---	12.4	---		
3204	69-80	2Bt2	---	---	3.0	72.0	6.5	81.5	2.0	3.2	9.0	15.3	0.290	1.56	---	17.1	---		

Table 30.--Physical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size Distribution										Bulk Density		Water Content			
			Sand					Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	1/3-bar	Oven Dry	1/3-bar	15-bar	
			Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)											
	In		(Percent)										cm/cm	g/cc	g/cc	Pct	Pct	
Topo (2,3) 88TX-261-005																		
3355	0-5	Anz1	---	0.1	2.8	59.6	13.3	75.8	6.2	12.2	3.7	12.0	0.024	1.48	---	21.3	---	
3356	5-10	Anz2	---	0.2	2.9	63.8	10.7	77.6	5.0	7.0	5.9	15.4	0.025	1.41	---	26.6	---	
3357	10-29	Bknz1	---	0.1	3.3	68.6	11.5	83.4	0.4	0.5	6.7	16.1	0.016	1.61	---	16.4	---	
3358	29-39	Bknz2	0.1	0.1	3.1	67.5	12.5	83.3	2.9	4.7	6.3	12.0	0.010	1.58	---	15.3	---	
3359	39-50	Bknz3	0.4	0.3	3.7	64.9	9.2	78.5	2.7	4.4	8.1	17.1	0.029	1.59	---	20.1	---	
3360	50-61	2Bnzg1	---	---	3.3	68.5	10.2	82.0	1.5	3.0	7.3	15.0	0.023	1.57	---	19.1	---	
3361	61-80	2Bnzg2	---	---	2.7	69.2	11.9	83.8	1.5	2.7	7.9	13.5	0.019	1.51	---	19.0	---	
Yturria (2,12) 00TX-261-003																		
6668	0-9	A1	0.4	0.7	3.2	63.2	13.4	80.9	4.8	9.6	5.3	9.5	0.022	1.36	1.45	27.9	---	
6669	9-24	A2	---	---	3.1	63.6	13.2	79.9	2.8	7.1	8.8	13.0	0.015	1.36	1.42	27.9	---	
6670	24-36	Bw1	---	---	2.9	63.3	13.5	79.7	2.8	8.5	8.0	11.8	0.012	1.38	1.43	24.8	---	
6671	36-55	B w2	---	---	2.8	61.8	13.9	78.5	2.9	8.4	9.0	13.1	0.011	1.45	1.50	22.7	---	
6672	55-77	Bk1	0.2	0.1	2.3	53.6	13.4	69.6	6.6	13.0	9.4	17.4	0.022	1.45	1.55	22.3	---	
6673	74-80	Bk2	0.1	---	2.4	56.5	13.8	72.8	4.7	11.3	9.4	15.9	0.018	1.48	1.56	21.4	---	

Footnotes

- (1) Analyses by Soil Survey Laboratory, USDA-NRCS, Lincoln, Nebraska.
- (2) Analyses by Soil Characterization Laboratory, Texas A&M University, College Station, Texas.
- (3) Location of pedon sample is the same as that given in the series as described in the section "Soil Series and Their Morphology."
- (4) In Kingsville, from the intersection of U.S. Highway 77 and Texas Highway 141 in Kingsville, 7.7 miles west on Texas Highway 141, 3.1 miles southwest on ranch road, 2.1 miles south on ranch road, 4.0 miles east on ranch road, and 200 foot south in rangeland.
- (5) In Kingsville, from the intersection of Texas Highway 141 and Armstrong Street, 1.8 miles north on Armstrong Street, and about 350 feet west in field. Kenedy County, Texas; from the intersection U.S. Highway 77 and La Parra Avenue in Sarita, 15.3 miles south on U.S. Highway 77, 8.1 miles west on ranch road, and 50 feet north in rangeland.
- (7) Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Ave in Sarita, 13 miles south on U.S. Highway 77, 15.6 miles east on ranch road, 2.3 miles southeast and east on ranch road, 1.15 miles northwest and west on ranch road, and 300 feet northwest in rangeland.
- (8) Kenedy County, Texas: from the intersection on U.S. Highway 77 and La Parra Ave in Sarita, 2.3 miles north on U. S. Highway 77, 5.0 miles east on paved ranch road, 4.15 miles south and east on ranch road, 0.19 mile south on ranch road, 0.25 mile southeast on ranch road, and 50 feet north in rangeland.
- (9) Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Avenue in Sarita, 2.3 miles north on U. S. Highway 77, 5.0 miles east on paved ranch road, 0.2 mile south on ranch road, and 50 feet west in rangeland.
- (10) Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Avenue in Sarita, 1.9 miles south on U. S. Highway 77, 1.8 miles east on ranch road, 0.2 mile north on ranch road, and 100 feet east in rangeland.
- (11) Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Avenue in Sarita, 15.25 miles south on U. S. Highway 77, 1.5 miles east on ranch road, and 110 feet south in rangeland.
- (12) Kenedy County, Texas: from the intersection of U.S. Highway 77 and La Parra Ave in Sarita, 30.15 miles south on U.S. Highway 77, 14.75 miles southwest and south on paved ranch road, 1.0 mile east on ranch road, 0.38 mile northeast and north on ranch road, 1.5 miles east and northeast along fence line, and 2,300 feet north-northeast in rangeland.

Table 31.--Chemical Analyses of Selected Soils
(Dashes indicate that analyses was not made)

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases				Cation exchange capacity (pH 7) (NH ₄ OAc)	Base saturation (NH ₄ OAc)	Exchange-able sodium (ESP)	Sodium adsorp-tion ratio	Electrical conductivity
					Ca	Mg	K	Na					
	In		Pct	pH	----- Meq/100gm -----				Pct	Pct	Pct		dS/m
Arenisco (2,3)													
98TX-261-007													
6347	0-10	A1	0.32	7.0	1.5	0.5	0.1	0.0	3.0	70	---	---	---
6348	10-35	A2	0.16	7.2	0.9	0.4	0.1	0.0	2.3	61	---	---	---
6349	35-48	C1	0.08	7.2	0.4	0.4	0.1	0.0	1.6	56	---	---	---
6350	48-64	C2	0.05	7.3	0.6	0.2	0.0	0.1	1.6	56	6	---	---
6351	64-80	C3	0.04	7.4	0.5	0.2	0.0	0.0	1.4	50	---	---	---
Atiras (2,3)													
98TX-261-005													
6329	0-8	A1	0.32	5.9	0.9	0.4	0.1	0.1	2.4	63	4	---	---
6330	8-17	A2	0.14	6.0	0.6	0.2	0.0	0.0	1.7	47	---	---	---
6331	17-28	C1	0.12	6.0	0.5	0.2	0.0	0.1	1.6	50	6	---	---
6332	28-45	C2	0.06	6.3	0.2	0.2	0.0	0.1	1.1	45	9	---	---
6333	45-58	C3	0.04	6.4	0.1	0.2	0.0	0.1	1.1	36	9	---	---
6334	58-61	2Ab	0.16	6.2	1.7	1.3	0.1	0.3	4.7	72	6	---	---
6335	61-67	2Bwb1	0.10	6.5	2.0	1.5	0.2	0.5	5.3	79	8	5	0.4
6336	67-73	2Bwb2	0.08	7.0	3.3	2.0	0.3	0.9	7.0	93	10	7	0.7
6337	73-80	2Bwb3	0.06	7.2	2.6	1.9	0.4	1.0	6.8	87	12	8	0.8
Carreta (1,3)													
81TX-273-001													
81P04998	0-3	Ap1	1.40	7.5	34.9*	7.0	1.3	13.8	23.9	100	10	19	31.20
81P04999	3-7	Ap2	1.32	7.4	31.0*	6.2	1.3	11.7	24.8	100	7	19	29.40
81P05000	7-11	Btnz1	1.51	7.6	31.1*	8.1	1.4	10.6	32.5	100	14	17	11.83
81P05001	11-21	Btnz2	1.39	7.5	32.2*	12.2	1.3	13.3	41.2	100	15	17	10.05
81P05002	21-31	Btknyz1	0.69	7.7	33.1*	12.6	1.4	13.4	34.1	100	18	18	10.38
81P05003	31-38	Btknyz2	0.46	7.8	41.8*	12.0	1.6	13.1	30.4	100	20	19	10.81
81P05004	38-49	Btkny1	0.34	7.9	47.6*	11.5	1.6	12.6	29.6	100	19	20	9.11
81P05005	49-67	Btkny2	0.19	7.9	51.5*	10.6	1.7	12.2	23.1	100	25	18	8.71
81P05006	67-80	Btkny3	0.14	7.8	119.6*	8.8	1.5	10.8	22.7	100	24	14	8.55
Cayo (2,3)													
88TX-261-006													
3362	0-5	A1	0.98	8.3	35.9	2.3	0.5	0.3	8.8	100	3	1	0.8
3363	5-12	A2	0.72	8.3	37.0	2.5	0.5	0.4	7.7	100	4	2	0.1
3364	12-19	Bk	0.53	8.3	36.7	2.8	0.5	0.5	7.2	100	5	2	0.1
3365	19-28	Bknz1	0.39	8.5	35.0	3.0	0.6	4.8	6.3	100	28	31	11.7
3366	28-41	Bknz2	0.38	8.5	33.8	2.9	0.6	5.5	6.0	100	28	33	12.9
3367	41-51	2Bknz3	0.22	8.4	32.0	3.8	0.2	8.0	8.2	100	28	37	18.0
3368	51-61	2Bknz4	0.28	8.4	29.1	4.2	0.9	9.2	8.6	100	27	37	19.0
3369	61-80	2Bnz	0.11	8.3	18.4	4.4	1.0	10.1	9.4	100	33	39	22.0

Table 31.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases				Cation exchange capacity (pH 7) (NH ₄ OAc)	Base saturation (NH ₄ OAc)	Exchangeable sodium (ESP)	Sodium adsorption ratio	Electrical conductivity
					Ca	Mg	K	Na					
	In		Pct	pH	----- Meq/100gm -----				Pct	Pct	Pct		dS/m
Colmena (2,4) S06TX-273-002													
7088	0-5	A	1.11	7.2	7.0	1.5	0.8	0.1	9.5	99	1	---	---
7089	5-11	Bt1	0.63	6.8	6.9	1.3	0.6	0.1	9.8	91	1	---	---
7090	11-22	Bt2	0.57	6.9	10.3	2.4	0.6	0.1	14.2	94	1	---	---
7091	22-39	Bt3	0.34	7.2	12.7	2.7	0.4	0.1	15.9	100	1	---	---
7092	39-50	2Btk1	0.21	8.2	43.6	3.2	0.4	0.2	16.5	100	1	---	---
7093	50-61	2Btk2	0.09	8.4	45.9	3.7	0.3	0.2	14.3	100	1	---	---
7094	61-80	2Btk3	0.27	8.4	46.4	3.9	0.3	0.3	14.6	100	2	---	---
Crane11 (1,5) 84TX-273-001													
84P03060	0-4	Ap	0.94	8.1	41.3*	5.0	1.3	1.0	25.6	100	2	2	2.35
84P03061	4-16	A	0.99	8.2	45.2*	4.7	1.0	1.0	25.3	100	3	4	1.01
84P03062	16-24	Bk1	0.54	8.7	53.0*	7.5	0.6	2.6	24.4	100	8	8	1.19
84P03063	24-34	Bk2	0.43	9.0	48.3*	8.7	0.8	5.3	23.7	100	18	13	1.46
84P03064	34-41	Bk3	0.31	9.1	46.5*	8.8	1.0	7.6	22.9	100	26	19	1.65
84P03065	41-80	Bk4	0.13	8.4	54.2*	7.9	1.0	10.7	21.6	100	23	18	8.14
Czar (2,3) S06TX273-003													
7095	0-7	A	1.55	6.0	8.0	2.0	1.2	0.1	12.3	92	1	0	1.8
7096	7-13	Bt1	0.96	6.8	9.4	2.7	1.2	0.1	14.3	94	1	---	---
7097	13-27	Bt2	0.71	7.1	11.6	3.4	1.0	0.1	16.3	99	1	---	---
7098	27-40	Bt3	0.44	7.4	11.5	3.5	0.6	0.2	15.9	99	1	---	---
7099	40-61	Bt4	0.32	7.8	10.4	3.3	0.6	0.3	14.3	100	2	---	---
7100	61-69	2Btk1	0.20	8.5	45.7	3.8	0.6	1.3	14.2	100	8	7	0.5
7101	69-80	2Btk2	0.17	8.8	38.9	3.7	0.5	3.1	11.5	100	23	15	1.0
Estella (2) 00TX-261-005													
6681	0-10	A1	0.31	6.0	0.9	0.4	0.3	0.1	2.4	71.0	4	---	---
6682	10-17	A2	0.11	6.0	0.7	0.3	0.1	0.1	1.7	71.0	6	---	---
6683	17-36	E1	0.06	7.1	0.6	0.2	0.0	0.1	1.4	64.0	12	---	---
6684	36-57	E2	0.04	7.8	0.8	0.4	0.1	0.1	1.7	82.0	6	---	---
6685	57-72	Btg1	0.05	7.8	3.0	2.6	0.3	0.9	6.8	100	13	---	---
6041	72-80	Btg2	0.03	8.3	3.8	3.7	0.5	2.2	9.9	100	19	12	0.8
Falfurrias (2,6) 87TX-261-004													
3206	0-8	A1	0.18	6.6	1.1	0.3	0.3	0.1	1.4	100	7	---	---
3207	8-25	A2	0.14	5.4	1.0	0.2	0.2	0.1	1.3	100	8	---	---
3208	25-51	C1	0.06	5.5	0.9	0.2	0.0	0.0	1.0	100	0	---	---
3209	51-80	C2	0.04	5.3	0.7	0.2	0.0	0.0	0.9	100	0	---	---

Table 31.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases				Cation exchange capacity (pH 7) (NH ₄ OAc)	Base saturation (NH ₄ OAc)	Exchangeable sodium (ESP)	Sodium adsorption ratio	Electrical conductivity
					Ca	Mg	K	Na					
				pH	----- Meq/100gm -----				Pct	Pct	Pct	dS/m	
Gertrudis (2,3) S06TX-273-004	In		Pct										
7102	0-7	A1	0.87	8.1	43.4	1.5	1.0	0.1	12.7	100	1	---	---
7103	7-17	A2	0.65	8.2	46.2	1.3	0.7	0.1	12.7	100	1	---	---
7104	17-25	Bk1	0.54	8.2	45.0	1.8	0.6	0.1	12.8	100	1	---	---
7105	25-40	Bk2	0.41	8.2	45.1	1.9	0.4	0.1	12.5	100	1	---	---
7106	40-50	2Bk1	0.39	8.2	45.6	2.4	0.4	0.2	13.2	100	2	---	---
7107	50-68	2Bk2	0.27	8.2	45.4	3.8	0.4	0.3	12.8	100	2	---	---
7108	68-80	2Bk3	0.25	8.4	43.6	3.8	0.5	0.3	11.4	100	3	---	---
Greenhill (1,3) S03TX-273-001													
03N04115	0-10	A1	---	6.1	0.3*	0.2	---	0.1	0.6	100	19	---	---
03N04116	10-28	A2	---	5.7	0.1*	0.2	---	0.1	0.4	100	16	---	---
03N04117	28-43	C1	---	5.7	0.1*	0.2	---	0.1	0.5	80	15	---	---
03N04118	43-60	C2	---	5.9	0.1*	0.1	---	0.1	0.2	100	41	---	---
03N04119	60-80	C3	---	---	tr	0.1	---	0.2	3.2	9	6	---	---
Lopeno (2,7) 88TX-261-003													
3339	0-7	A	0.32	6.4	0.8	0.4	0.1	0.0	1.7	76	---	---	---
3340	7-13	C1	0.14	6.1	0.3	0.2	0.1	0.1	1.9	37	---	---	---
3341	13-18	C2	0.05	6.1	0.4	0.2	0.1	0.1	1.8	44	---	---	---
3342	18-30	AB	0.07	6.1	0.5	0.2	0.1	0.1	1.8	50	---	---	---
3343	30-37	EB1	0.06	6.1	0.5	0.2	0.0	0.1	1.6	50	---	---	---
3344	37-57	EB2	0.04	6.3	0.3	0.2	0.0	0.1	1.5	40	---	---	---
3345	57-61	2Agb	0.10	6.3	1.7	0.5	0.1	0.2	3.5	71	---	---	---
3346	61-72	2Bgb1	0.06	6.5	3.1	2.0	0.3	0.3	6.3	92	---	---	---
3347	72-80	2Bgb2	0.03	6.7	3.5	2.6	0.3	0.3	6.7	100	---	---	---
Malaquite (1,3) S03TX-273-004													
03N04137	0-5	Anz	---	8.2	9.7*	2.3	0.2	7.3	1.0	100	21	35	21.90
03N04138	5-12	Cnzg1	---	8.5	9.2*	1.1	tr	3.0	0.5	100	37	26	9.82
03N04139	12-21	Cnzg2	---	8.5	2.7*	1.2	0.1	5.4	0.6	100	98	36	16.75
03N04140	21-27	Anzb	---	8.3	2.0*	2.1	0.1	7.1	1.7	100	51	39	23.80
03N04141	27-38	Cnzyb1	---	8.2	18.3*	2.1	0.1	7.1	0.7	100	59	37	26.60
03N04142	38-69	Cnzyb2	---	8.3	14.6*	1.6	0.1	9.1	0.5	100	412	38	24.50
03N04143	69-80	Cnzyb3	---	8.1	28.3*	2.5	0.1	7.2	0.7	100	227	32	22.00

Table 31.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases				Cation exchange capacity (pH 7) (NH ₄ OAc)	Base saturation (NH ₄ OAc)	Exchangeable sodium (ESP)	Sodium adsorption ratio	Electrical conductivity
					Ca	Mg	K	Na					
	In		Pct	pH	----- Meq/100gm -----				Pct	Pct	Pct		dS/m
Medanito (2,3)													
98TX-261-006													
6338	0-9	A1	0.34	6.4	1.3	0.4	0.1	0.1	2.8	68	4.0	---	---
6339	9-26	A2	0.18	6.4	0.8	0.4	0.1	0.1	2.3	61	4.0	---	---
6340	26-32	C	0.09	6.0	0.3	0.4	0.0	0.1	1.8	50	6.0	---	---
6341	32-36	2Ab	0.27	6.4	3.3	1.8	0.2	0.9	7.7	81	12.0	---	---
6342	36-42	2Bnb1	0.14	7.5	3.2	1.8	0.3	1.6	7.5	92	16.0	13.0	1.6
6343	42-51	2Bnb2	0.07	8.0	4.4	2.3	0.4	3.2	9.3	100	24.0	17	3.0
6344	51-59	2Bnb3	0.05	8.2	4.8	2.4	0.5	4.0	10.4	100	27.0	20	3.4
6345	59-73	3BCn1	0.07	8.1	4.8	2.4	0.5	4.2	10.8	100	27.0	19	3.8
6346	73-80	3BCn2	0.05	8.0	4.3	2.0	0.5	3.3	8.5	100	27.0	16.00	3.40
Mustang (1,3)													
S03TX-273-003													
03N04128	0-4	A1	---	8.5	22.7*	2.8	0.1	0.9	1.2	100	25	7	2.66
03N04129	4-11	A2	---	8.8	13.7*	0.8	---	0.2	0.6	100	37	---	---
03N04130	11-21	Cg1	---	8.9	7.0	0.4	---	0.3	---	100	---	---	---
03N04131	21-34	Cg2	---	8.4	8.2*	0.4	---	0.4	0.4	100	32	4	1.52
03N04132	34-45	Cg3	---	8.4	11.9*	0.5	---	0.4	0.3	100	54	3	1.76
03N04133	45-57	Cg4	---	8.5	10.0*	0.6	---	0.4	0.7	100	26	4	1.57
03N04134	57-71	Cg5	---	8.9	5.3*	0.3	---	0.4	0.2	100	159	---	---
03N04135	71-80	Cg6	---	8.8	8.6*	0.3	---	0.4	0.3	100	142	6	---
Noria (2,3)													
00TX-261-001													
6652	0-3	Anz	0.59	8.7	26.2	7.5	0.8	10.1	4.4	100	60	60	23.0
6653	3-7	Cnzg1	0.13	9.1	24.3	3.7	0.3	3.0	2.8	100	56	28	5.4
6654	7-21	Cnzg2	0.14	9.4	9.3	1.6	0.2	2.4	2.4	100	60	32	4.0
6655	21-33	Cnzg3	0.06	9.3	2.0	0.9	0.2	3.6	2.0	100	97	45	6.3
6656	33-39	Cnzg4	0.06	9.0	1.7	1.4	0.4	5.1	3.9	100	71	44	8.9
6657	39-60	Bnzgb1	0.05	8.7	1.9	1.9	0.5	6.4	6.6	100	53	42	8.7
6658	60-80	Bnzgb2	0.03	8.4	2.5	2.0	0.5	6.4	6.8	100	48	31	9.5
Padrones (2,8)													
87TX-261-001													
3184	0-2	A1	0.72	5.9	2.3	0.7	0.1	0.1	3.9	82	3	---	---
3185	2-8	A2	0.39	6.0	1.5	0.7	0.1	0.1	3.7	65	3	---	---
3186	8-17	E1	0.16	6.0	0.9	0.5	0.1	0.1	1.7	94	6	---	---
3187	17-26	E2	0.04	6.2	0.4	0.4	0.1	0.1	1.3	77	8	---	---
3188	26-40	2Btgn1	0.13	6.6	2.2	2.9	0.4	1.0	5.8	100	15	11	1.6
3189	40-46	2Btgn2	0.17	7.1	4.2	7.5	1.0	6.1	13.7	100	23	23	6.5
3190	46-53	2Btgn3	0.07	7.5	4.5	7.8	1.3	9.2	15.6	100	31	26	8.1
3191	53-64	2Btn	0.12	7.7	5.1	7.8	1.5	9.5	16.0	100	25	29	9.0
3192	64-80	2BCtn1	0.07	7.6	3.8	5.9	1.2	7.5	12.0	100	29	27	8.8

Table 31.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases				Cation exchange capacity (pH 7) (NH ₄ OAc)	Base saturation (NH ₄ OAc)	Exchangeable sodium (ESP)	Sodium adsorption ratio	Electrical conductivity
					Ca	Mg	K	Na					
	In		Pct	pH	----- Meq/100gm -----				Pct	Pct	Pct		dS/m
Palobia (2,9) 87TX-261-002													
3211	0-4	A1	0.51	6.7	6.7	0.9	0.2	0.1	4.3	100	2	---	---
3212	4-14	A2	0.26	6.8	3.1	0.7	0.1	0.1	3.1	100	3	---	---
3213	14-19	2Btgn	0.46	7.3	6.9	4.9	0.3	1.8	11.5	100	14	8	0.7
3214	19-25	2Btn1	0.34	8.1	7.5	7.4	0.5	4.6	16.0	100	25	16	1.3
3215	25-31	2Btn2	0.17	8.2	11.3	8.5	0.6	7.3	17.1	100	31	25	3.0
3216	31-44	2Btk1	0.05	8.0	27.7	10.5	0.7	9.2	17.5	100	28	25	8.1
3217	44-60	2Btk2	0.06	8.1	15.9	6.5	0.5	7.3	12.7	100	25	25	11.0
3218	60-80	2Btk3	0.04	8.1	11.3	5.9	0.5	6.6	10.7	100	24	25	10.5
Panam (1,3) S01TX-273-002													
03N04120	0-4	A1	---	7.4	4.2*	0.3	tr	0.1	1.2	100	9	---	---
03N04121	4-9	A2	---	7.8	4.6*	0.2	---	0.1	1.0	100	9	---	---
03N04122	9-18	C1	---	8.4	11.6*	0.1	---	0.2	0.2	100	81	---	---
03N04123	18-30	C2	---	8.5	9.7*	0.1	---	0.1	0.7	100	14	---	---
03N04124	30-38	C3	---	8.5	10.6*	0.1	---	0.1	0.6	100	19	---	---
03N04125	38-48	Cg1	---	8.6	2.8*	0.1	---	0.1	0.5	100	14	---	---
03N04126	48-60	Cg2	---	8.5	7.5*	0.1	---	0.1	0.9	100	13	---	---
03N04127	60-80	Cg3	---	8.6	15.5*	0.3	---	0.2	0.5	100	42	---	---
Potrero (2,3) 88TX-261-004													
3349	0-8	A	0.15	6.5	0.6	0.4	0.1	0.1	2.2	55	5	---	---
3349	8-21	C1	0.06	6.3	0.4	0.2	0.0	0.1	1.7	41	6	---	---
3350	21-32	C2	0.04	6.3	0.6	0.2	0.0	0.1	1.6	56	3	2	0.4
3351	32-39	Agb	0.12	6.5	2.1	0.9	0.2	0.2	4.2	81	4	2	0.3
3352	39-45	Bgb1	0.13	6.9	3.6	1.8	0.3	0.3	6.3	95	4	2	0.4
3353	45-53	Bgb2	0.07	7.4	3.6	2.2	0.4	0.4	6.3	100	6	2	0.4
3354	53-80	Bgb3	0.05	7.2	3.7	2.3	0.4	0.5	7.3	94	6	3	0.4
Premont (2,3) S06-TX131-001													
7184	0-8	Ap	0.49	5.9	3.8	1.4	0.9	0.1	7.6	82	1	---	---
7185	8-16	Bt1	0.46	6.5	5.9	2.3	0.7	0.1	12.3	73	1	---	---
7186	16-22	Bt2	0.41	7.1	9.2	2.3	0.4	0.1	14.5	83	1	---	---
7187	22-34	Bt3	0.35	7.9	11.8	2.8	0.4	0.1	16.4	92	0	0	0.5
7188	34-37	Btk	0.35	8.2	35.5	3.9	0.5	0.2	20.1	100	1	1	0.5
7189	37-49	2Btk1	0.27	8.2	35.3	3.9	0.4	0.2	17.7	100	1	1	0.6
7190	49-60	2Btk2	0.29	8.3	35.5	3.7	0.3	0.3	11.9	100	2	1	0.7
7191	60-80	2Bk	0.21	8.4	34.5	3.8	0.3	0.4	10.2	100	3	2	0.8

Table 31.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases				Cation exchange capacity (pH 7) (NH ₄ OAc)	Base saturation (NH ₄ OAc)	Exchangeable sodium (ESP)	Sodium adsorption ratio	Electrical conductivity
					Ca	Mg	K	Na					
	In		Pct	pH	----- Meq/100gm -----				Pct	Pct	Pct		dS/m
Quiteria (2,10) 98TX-261-004													
6320	0-4	A1	0.49	6.3	1.2	0.7	0.3	0.2	3.5	69	6	---	---
6321	4-11	A2	0.17	6.8	0.8	0.6	0.1	0.2	2.4	71	8	---	---
6322	11-13	Btn1	0.38	7.5	2.8	2.9	0.5	1.5	8.4	92	18	---	---
6323	13-17	Btn2	0.28	8.1	2.7	3.0	0.3	3.3	8.8	100	32	20	1.3
6324	17-22	Btn3	0.13	8.4	2.4	3.4	0.5	6.3	10.2	100	45	36	4.0
6325	22-34	Btn4	0.10	8.1	6.7	3.7	0.6	9.8	11.8	100	39	26	13.5
6326	34-50	Bt _{ny} 1	0.04	7.9	17.3	5.9	0.9	11.8	13.8	100	40	28	14.0
6327	50-70	Bt _{ny} 2	0.08	7.9	12.2	5.7	1.0	12.9	14.6	100	42	27	14.5
6328	70-80	B _{ck}	0.04	8.1	11.7	5.5	0.8	10.7	12.2	100	39	28	14.0
Ramita (2,3) 00TX-261-002													
6659	0-4	A1	0.54	5.7	1.5	0.6	0.3	0.2	3.6	72	6	---	---
6660	4-11	A2	0.33	5.9	1.1	0.6	0.2	0.1	3.3	61	3	---	---
6661	11-15	E	0.16	6.6	0.9	0.4	0.2	0.2	2.2	77	9	---	---
6662	15-22	B _{tn} 1	0.37	7.8	4.5	2.3	0.8	2.6	9.3	100	19	19	2.2
6663	22-30	B _{tn} 2	0.16	8.3	6.2	3.7	1.3	8.4	12.0	100	40	33	7.8
6664	30-44	B _{tn} 3	0.15	8.2	8.5	3.6	1.3	9.7	11.4	100	37	34	11.5
6665	44-55	B _{tny}	0.07	8.3	26.1	5.5	1.3	14.1	11.8	100	37	40	19.0
6666	55-68	2B _{tkny} 1	0.11	8.7	44.4	5.6	1.1	14.0	9.4	100	24	43	20.0
6667	68-80	2B _{tkny} 2	0.16	8.8	44.4	5.5	0.9	12.4	8.2	100	36	43	18.0
Sarita (2,11) 87TX-261-003													
3199	0-8	A1	0.45	7.6	1.9	0.4	0.2	0.2	2.2	100	9	---	---
3200	8-23	A2	0.21	7.1	1.4	0.4	0.1	0.1	1.6	100	6	---	---
3201	23-48	E1	0.09	6.7	0.8	0.2	0.1	0.2	1.2	100	17	---	---
3202	48-64	E2	0.23	6.7	0.6	0.2	0.0	0.2	1.2	83	17	---	---
3203	64-69	2B _t 1	0.36	6.4	2.2	1.6	0.2	0.7	5.0	94	6	7	1.7
3204	69-80	2B _t 2	0.05	6.0	3.4	2.7	0.2	2.4	7.5	100	16	11	6.3
Topo (2,3) 88TX-261-005													
3355	0-5	Anz1	0.78	9.0	29.4	6.9	0.8	4.9	7.0	100	46	39	5.4
3356	5-10	Anz2	0.44	9.1	35.5	4.8	0.6	2.6	6.1	100	34	22	2.2
3357	10-29	B _{kzn} 1	0.19	9.5	34.9	3.4	0.5	3.8	4.7	100	58	41	3.1
3358	29-39	B _{kzn} 2	0.06	9.3	22.4	2.6	0.5	4.6	4.5	100	61	52	4.8
3359	39-50	B _{kzn} 3	0.06	8.8	24.5	3.7	0.7	5.4	7.2	100	45	35	5.5
3360	50-61	2B _{nzg} 1	0.06	8.7	6.6	3.0	0.7	5.1	7.3	100	43	32	5.5
3361	61-80	2B _{nzg} 2	0.09	8.8	6.1	2.3	0.5	4.3	7.0	100	35	32	4.7

Table 31.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases				Cation exchange capacity (pH 7) (NH ₄ OAc)	Base saturation (NH ₄ OAc)	Exchangeable sodium (ESP)	Sodium adsorption ratio	Electrical conductivity
					Ca	Mg	K	Na					
	In		Pct	pH	----- Meq/100gm -----				Pct	Pct	Pct		dS/m
Yturria (2,12) 00TX-261-003													
6668	0-9	A1	1.29	6.8	8.1	1.4	1.0	0.1	10.0	100	1	---	---
6669	9-24	A2	0.40	7.4	6.9	1.1	1.0	0.1	8.3	100	1	---	---
6670	24-36	Bw1	0.36	7.5	7.0	1.3	0.8	0.1	7.7	100	1	---	---
6671	36-55	B w2	0.20	8.2	10.0	1.3	0.4	0.1	7.9	100	1	---	---
6672	55-77	Bk1	0.14	8.4	57.5	1.3	0.4	0.2	7.4	100	3	---	---
6673	74-80	Bk2	0.17	8.4	42.4	1.3	0.4	0.1	7.5	100	1	---	---

Footnotes

- * Extractable Ca may contain Ca from calcium carbonate or gypsum. CEC7 base saturation set to 100.
- (1) Analyses by Soil Survey Laboratory, USDA-NRCS, Lincoln, Nebraska.
- (2) Analyses by Soil Characterization Laboratory, Texas A&M University, College Station, Texas.
- (3) Location of pedon sample is the same as that given in the series as described in the section "Soil Series and Their Morphology."
- (4) In Kingsville, from the intersection of U.S. Highway 77 and Texas Highway 141 in Kingsville, 7.7 miles west on Texas Highway 141, 3.1 miles south west on ranch road, 2.1 miles south on ranch road, 4.0 miles east on ranch road, and 200 foot south in rangeland.
- (5) In Kingsville, from the intersection of Texas Highway 141 and Armstrong Street, 1.8 miles north on Armstrong Street, and about 350 feet west in field.
- (6) Kenedy County, Texas; from the intersection U.S. Highway 77 and La Parra Ave in Sarita, 15.3 miles south on U.S. Highway 77, 8.1 miles west on ranch road, and 50 feet north in rangeland.
- (7) Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Ave in Sarita, 13 miles south on 15.6 miles east on ranch road, 2.3 miles southeast and east on ranch road, 1.15 miles northwest and west on 300 feet northwest in rangeland.
- (8) Kenedy County, Texas: from the intersection on U.S. Highway 77 and La Parra Ave in Sarita, 2.3 miles north 5.0 miles east on paved ranch road, 4.15 miles south and east on ranch road, 0.19 mile south on ranch road, on ranch road, and 50 feet north in rangeland.
- (9) Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Ave in Sarita, 2.3 miles north on U.S. Highway 77, 5.0 miles east on paved ranch road, 0.2 mile south on ranch road, and 50 feet west in rangeland.
- (10) Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Ave in Sarita, 1.9 miles south on U.S. Highway 77, 1.8 miles east on ranch road, 0.2 mile north on ranch road, and 100 feet east in rangeland.
- (11) Kenedy County, Texas; from the intersection of U.S. Highway 77 and La Parra Ave in Sarita, 15.25 miles south on U.S. Highway 77, 1.5 miles east on ranch road, and 110 feet south in rangeland.
- (12) Kenedy County, Texas: from the intersection of U.S. Highway 77 and La Parra Ave in Sarita, 30.15 miles south on U.S. Highway 77, 14.75 miles southwest and south on paved ranch road, 1.0 mile east on ranch road, 0.38 mile northeast and north on ranch road, 1.5 miles east and northeast along fenceline, and 2,300 feet north-northeast in rangeland.

Table 32.--Clay Mineralogy Analyses of Selected Soils

(Analysis by National Soil Survey Laboratory, USDA-NRCS, Lincoln, Nebraska. Relative Peak Size; 5-Very large; 4-Large; 3-Medium; 2-Small; 1-Very small. Dashes indicate that none of the mineral was detected.

Soil name and sample number	Depth	Horizon	Peak Size				
			Montmorillonite	Mica	Kaolinite	Quartz	Calcite
Carreta (1,2) 81TX-273-001	In						
81P04998	0-3	Ap1	1	3	1	1	---
81P05001	11-21	Bt2	3	3	1	2	---
81P05005	49-80	2B1	3	3	1	1	---

(1) Analyses by Soil Survey Laboratory, USDA-NRCS, Lincoln, Nebraska

(2) Location of pedon sample is the same as that given in the series as described in the section "Soil Series and Their Morphology."

Table 33.--Optical Grain Count Analyses of Selected Soils

(Fine sand fraction. Analysis by National Soil Survey Laboratory, USDA-NRCS, Lincoln, Nebraska. Dashes indicate that the material was not detected.)

Soil name and sample number	Depth	Horizon	Minerals (1) Fine Sand Fraction (Percent by Optical Grain Count - TR=trace)														
			QZ	CD	OP	FE	FP	RA	FK	TM	RU	CB	HN	BY	CA	PR	MS
Greenhill (2,3) S03TX-273-001 03N04116	In 10-28	A2	90	3	---	---	---	tr	8	tr	tr	---	tr	tr	---	---	---
Malaquite (2,3) S03TX-273-004 03N04139 03N04140 03N04141	12-21 21-27 27-38	Cnzg Anzb Cnzgb1	88 88 84	5 6 5	---	---	tr tr ---	1 1 1	6 6 10	tr ---	---	---	---	---	---	---	---
Mustang (2,3) S03TX-273-003 03N04130 03N04132	12-21 34-45	Cg1 Cg3	89 88	3 5	tr tr	---	tr tr	1 1	7 6	tr ---	---	---	---	---	tr	---	tr
Panam (2,3) S01TX-273-002 03N04123 03N04125	18-30 36-48	C2 Cg1	88 89	4 4	---	tr ---	tr ---	tr 1	8 7	---	---	---	tr ---	---	tr ---	---	---

- (1) QZ-Quartz; CD-Chert (chalcedony); OP-Opagues; FE-Iron oxides (goethite); FK-Potassium feldspar; FP-Plagioclase feldspar; RA-Resistant aggregates; FK-Potassium feldspar; TM-Tourmaline; RU-Rutile; CB-Carbonate aggregates; HN-Hornblende; BY-Beryl; CA-Calcite; PR-Pyroxene; MS-Muscovite
- (2) Analyses by Soil Survey Laboratory, USDA-NRCS, Lincoln, Nebr
- (3) Location of pedon sample is the same as that given in the series as described in the section "Soil Series and Their Morphology."

Table 34.--Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Aransas-----	Fine, smectitic, hyperthermic Typic Natraquerts
Arenisco-----	Mixed, hyperthermic Typic Ustipsamments
Arrada-----	Fine-loamy, mixed, semiactive, calcareous, hyperthermic Typic Halaquepts
Atiras-----	Mixed, hyperthermic Typic Ustipsamments
Baffin-----	Coarse-loamy, siliceous, active, calcareous, hyperthermic Sodic Hydraquents
Banquete-----	Fine, smectitic, hyperthermic Udic Haplusterts
Barrada-----	Fine, mixed, active, calcareous, hyperthermic Typic Halaquepts
Bordas-----	Fine-loamy, mixed, active, hyperthermic Typic Albaqualfs
Calallen-----	Fine-loamy, mixed, superactive, hyperthermic Pachic Argiustolls
Carreta-----	Fine, smectitic, hyperthermic Leptic Vertic Natrustolls
Cayo-----	Coarse-loamy, mixed, semiactive, hyperthermic Typic Calciustepts
Clareville-----	Fine, smectitic, hyperthermic Pachic Argiustolls
Colmena-----	Fine-loamy, mixed, superactive, hyperthermic Typic Argiustolls
Cranell-----	Fine, smectitic, hyperthermic Vertic Argiustolls
Czar-----	Fine-loamy, mixed, superactive, hyperthermic Pachic Argiustolls
Daggerhill-----	Hyperthermic, uncoated Ustic Quartzipsamments
Delfina-----	Fine-loamy, mixed, superactive, hyperthermic Typic Paleustalfs
*Dietrich-----	Fine-loamy, mixed, active, hyperthermic Typic Natraqualfs
Dietrich-----	Fine-loamy, mixed, active, hyperthermic Typic Natraqualfs
Edroy-----	Fine, smectitic, hyperthermic Ustic Epiaquerts
Estella-----	Coarse-loamy, mixed, active, hyperthermic Oxyaquic Haplustalfs
Falfurrias-----	Mixed, hyperthermic Typic Ustipsamments
Gertrudis-----	Fine-loamy, mixed, active, hyperthermic Typic Calciustolls
Greenhill-----	Hyperthermic, uncoated Ustic Quartzipsamments
Incell-----	Fine-loamy, mixed, superactive, hyperthermic Cumulic Endoaquolls
Lalinda-----	Fine-loamy, mixed, active, hyperthermic Typic Haplustepts
Lopeno-----	Mixed, hyperthermic Oxyaquic Ustipsamments
Madre-----	Siliceous, hyperthermic Sodic Psammaquents
Malaquite-----	Sandy, siliceous, hyperthermic Typic Halaquepts
Medanito-----	Mixed, hyperthermic Typic Ustipsamments
Montealto-----	Fine, mixed, active, hyperthermic Ustic Epiaquerts
Mustang-----	Siliceous, hyperthermic Typic Psammaquents
Narta-----	Fine, smectitic, hyperthermic Typic Natraqualfs
Noria-----	Mixed, hyperthermic Sodic Psammaquents
Novillo-----	Siliceous, hyperthermic Typic Psammaquents
Nueces-----	Loamy, mixed, active, hyperthermic Arenic Paleustalfs
Orelia-----	Fine-loamy, mixed, superactive, hyperthermic Typic Argiustolls
Padre-----	Hyperthermic, uncoated Aquic Quartzipsamments
Padrones-----	Loamy, mixed, active, hyperthermic Arenic Natrustalfs
Palobia-----	Fine-loamy, mixed, active, hyperthermic Typic Natrustalfs
Panam-----	Hyperthermic, uncoated Aquic Quartzipsamments
Papagua-----	Fine, mixed, active, hyperthermic Typic Albaqualfs
*Point Isabel-----	Fine, smectitic, active, hyperthermic Typic Calciustepts
*Portalto-----	Siliceous, hyperthermic Oxyaquic Haplustalfs
Potrero-----	Mixed, hyperthermic Aquic Ustipsamments
Premont-----	Fine-loamy, mixed, superactive, hyperthermic Typic Haplustalfs
Quiteria-----	Coarse-loamy, mixed, active, hyperthermic Typic Natrustalfs
Ramita-----	Fine-loamy, mixed, active, hyperthermic Typic Natraqualfs
Rockport-----	Hyperthermic, coated Oxyaquic Quartzipsamments
Sarita-----	Loamy, mixed, active, hyperthermic Grossarenic Paleustalfs
Satatton-----	Siliceous, hyperthermic Sodic Psammaquents
Sauce1-----	Coarse-loamy, mixed, active, calcareous, hyperthermic Typic Halaquepts
Sauz-----	Coarse-loamy, mixed, active, hyperthermic Typic Natraqualfs
Tatton-----	Siliceous, hyperthermic Sodic Psammaquents
Topo-----	Coarse-loamy, mixed, semiactive, calcareous, hyperthermic Typic Halaquepts
Twinpalms-----	Coarse-loamy, siliceous, active, calcareous, hyperthermic Aquic Ustorthents
Victine-----	Fine, smectitic, hyperthermic Sodic Haplusterts
Victoria-----	Fine, smectitic, hyperthermic Sodic Haplusterts
Yarborough-----	Coarse-loamy, siliceous, active, calcareous, hyperthermic Typic Halaquepts
Yturria-----	Coarse-loamy, mixed, superactive, hyperthermic Pachic Haplustolls

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