United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
Louisiana Agricultural
Experiment Station and
Louisiana Soil and Water
Conservation Committee

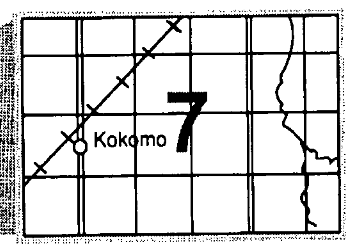
Soil Survey of East and West Feliciana Parishes, Louisiana

How to Use This Soil Survey

General Soil Map

The general soil map, which is the color map preceding the detailed soil maps, 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.

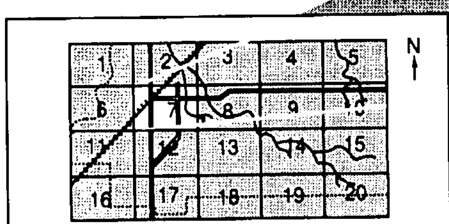


MAP SHEET

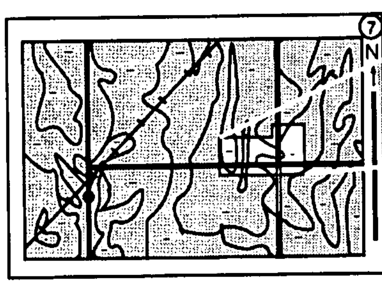
Detailed Soil Maps

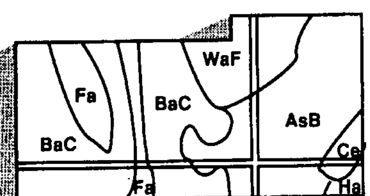
The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

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


INDEX TO MAP SHEETS

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


MAP SHEET



AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

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 Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1991. Soil names and descriptions were approved in 1992. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1991. This survey was made cooperatively by the Natural Resources Conservation Service, the Louisiana Agricultural Experiment Station, and the Louisiana Soil and Water Conservation Committee. The survey is part of the technical assistance furnished to the Feliciana Soil and Water Conservation District.

Cover: Pasture and corn in an area of Tangi silt loam, 1 to 3 percent slopes.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is http://www.nrcs.usda.gov (click on "Technical Resources").

Issued 2001

Contents

Foreword

This soil survey contains information that can be used in land-planning programs in East and West Feliciana Parishes, Louisiana. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, 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, foresters, 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.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. 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 underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. 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 the Cooperative Extension Service.

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Soil Survey of
East and West Feliciana Parishes, Louisiana

By Donald McDaniel, Natural Resources Conservation Service

Fieldwork by Dennis Daugereaux, Lyfon Morris, Jeanette Bradley, and
Donald McDaniel, Natural Resources Conservation Service; and
Pamela S. Porter, Louisiana Soil and Water Conservation Committee

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
the Louisiana Agricultural Experiment Station and the Louisiana Soil and Water
Conservation Committee

East and West Feliciana Parishes are in the southeastern part of Louisiana (fig. 1). The total area is 564,600 acres, of which 13,600 acres is water in the form of lakes, bayous, and rivers. The parishes border Amite and Wilkinson Counties, Mississippi, on the north and East Baton Rouge Parish on the south. To the east is St. Helena Parish and to the west is the Mississippi River. In 1990, according to the Bureau of the Census, the population of East Feliciana Parish was 20,113, and the population of West Feliciana Parish was 13,563. About 78 percent of the population of both parishes live in rural areas. About 60 percent of the land in both parishes is woodland, 8 percent is cropland, and 24 percent is pastureland.

The parishes consist of two major land resource areas—Southern Mississippi Valley Silty Uplands and Southern Mississippi Valley Alluvium. These major land resource areas are used mainly as woodland, pastureland, and cropland. The Southern Mississippi Valley Silty Uplands major land resource area consists dominantly of well drained, moderately well drained, somewhat poorly drained, and poorly drained loamy soils. The Southern Mississippi Valley Alluvium major land resource area consists mainly of well drained and somewhat poorly drained loamy soils on natural levees and poorly drained and very poorly drained clayey soils on natural levees and in backswamps. Elevation is about 360 feet above sea level in the Southern Mississippi Valley Silty Uplands major land resource area and 25 feet above sea level in the swamps of the Southern Mississippi Valley Alluvium major land resource area.

Descriptions and names of soils in this survey do not fully agree with those on soil maps for adjacent parishes or counties. Differences are the result of better information on soils, modifications in series concepts, intensity of mapping, or the extent of soils within the survey area.

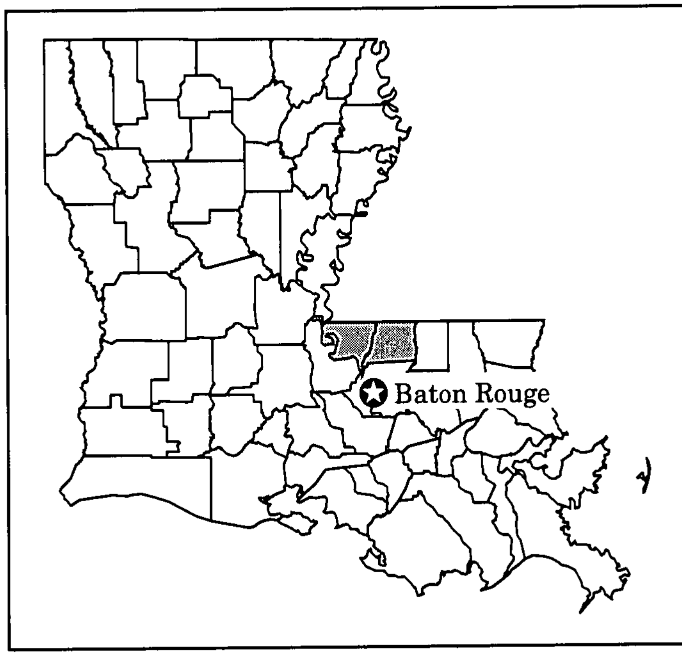

Figure 1.—Location of East and West Feliciana Parishes in Louisiana.

General Nature of the Survey Area

This section gives general information concerning the survey area. It discusses the climate, agriculture, history, industry, transportation facilities, and water resources in the survey area.

Climate

Prepared by the National Climatic Data Center, Asheville, North Carolina.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Clinton, Louisiana, in the period 1931 to 1991. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 54 degrees F and the average daily minimum temperature is 41 degrees. The lowest temperature on record, which occurred at Clinton, is 7 degrees. In summer, the average temperature is 78 degrees and the average daily maximum temperature is 89 degrees. The highest recorded temperature, which occurred at Clinton, 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 total annual precipitation is about 60.7 inches. Of this, 30 inches, or 50 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 16 inches.

Agriculture

Agriculture and woodland are important to the economy of East and West Feliciana Parishes. In 1990, the estimated gross value of all agricultural products and woodland was approximately $37.9 million. All crops, including forestry products, produced over $22.5 million. Animal products made up about $13.1 million of the gross value *(26)*. In 1987, according to the Census of Agriculture, 435 farms were in East Feliciana Parish and 171 farms were in West Feliciana Parish *(50)*. The value of the average farm, including land and buildings, was about $307,878 in East Feliciana Parish and $410,538 in West Feliciana Parish. In East Feliciana Parish, the average size of a farm in 1982 was about 384 acres, and by 1987, the average size had decreased to about 308 acres. In West Feliciana Parish, the average size of a farm in 1982 was 555 acres, and by 1987, the average size had decreased to about 519 acres. The average market value of agricultural products sold per farm in 1987 was $19,020 in East Feliciana Parish and $32,168 in West Feliciana Parish *(50)*.

The beef industry is an important agricultural revenue-producing enterprise. In 1990, beef production was valued at over $7 million in East Feliciana Parish and $3.7 million in West Feliciana Parish. In 1990, 8 dairy farms and over 1,200 cows produced dairy products worth over $1.7 million in East Feliciana Parish, and about 150 dairy cows produced products valued at $186,200 in West Feliciana Parish.

In 1987, according to the Census of Agriculture, 16,571 acres was used as cropland in both parishes combined. In 1990, the three major crops, in order of cash value, were vegetables, grass sod, and corn in East Feliciana Parish and soybeans, corn, and sweet potatoes in West Feliciana Parish.

History

In the eighteenth century and early part of the nineteenth century, East and West Feliciana Parishes were part of West Florida. They were under Spanish rule until the Florida revolt in 1810. West Florida then became a part of the Orleans Territory. Feliciana Parish was formed on December 22, 1810 *(27)*. It was annexed to Louisiana on August 12, 1812; then, on February 17, 1824, the parish of Feliciana was divided to form East and West Feliciana Parishes. St. Francisville became the parish seat of West Feliciana Parish. In 1825, Clinton was selected as the parish seat of East Feliciana Parish.

The name "Feliciana" was taken from the Christian name of Felicite de Sant-Maxent, wife of Don Bernaldo de Galves, the governor of Spanish Louisiana who gained control of West Florida from the British during the American Revolution. "Feliciana" is a Spanish word which means "happy land."

In 1790, St. Francisville was established by the Spanish as a local seat of government. The St. Francisville area is the third oldest settlement in Louisiana, the first being Natchitoches and the second New Orleans. Iberville and Bienville terminated their journey up the Mississippi River at its junction with Bayou Sara, which lies just west of St. Francisville. In 1700, the French established a post in the St. Francisville area called Fort St. Reine (Queen's Fort). At that time, the Houma Indians were domiciled in the area. Tonti, a companion of LaSalle, remained in the area and was the first white man to dwell in West Feliciana Parish. Before the arrival of white settlers, Tunica Indians were the main inhabitants of East Feliciana Parish.

East Feliciana Parish grew and prospered from 1824 to the time of the Civil War. It became a vast cotton-growing region, and its rich plantation economy, banking institutions, and even its commerce and industry were soon well established. In 1924, the population of East Feliciana Parish was approximately 5,000, and by 1860, the population had nearly tripled. The Clinton and Port

Hudson Railroad, completed in 1840, was built from Clinton to the Mississippi River where the Town of Port Hudson was established. It provided easy transportation for the shipment of cotton and other commodities to the river where these products could be loaded on steamboats and shipped to New Orleans and other destinations.

The towns of Jackson and Clinton soon became cultural and educational centers, while Port Hudson became the shipping center. The wealthy planter families established their town houses in Clinton and, as a result, the community was cultured and aristocratic.

The West Feliciana Railroad was chartered in 1831. The third oldest in the United States and the first standard gauge railroad, it is said to have established the standard for the railroads in America. It was completed in 1838 and was a feeder for the cotton trade to the north and east of the parish and for those wishing to reach the Mississippi River and the steamboat connections.

East Feliciana Parish excelled in the architecture of both its homes and its public buildings. Many of the wealthy residents built beautiful and palatial mansions, mainly of the Greek Revival style, which were filled with furniture made by some of the best artisans of America and Europe. While a few of these mansions were designed by architects, most were designed and built by the owners themselves, with the assistance of a few carpenters and the plantation slaves.

After the decline of cotton production, which was brought about by the boll weevil and later by government restrictions on cotton acreage, the economy of the parishes remained at a standstill for many years. Mechanization and efficient farming methods were comparatively unknown, and there were few industries in the area to supplement the declining agricultural economy. In the intervening years, many of the young men and women left the area to seek employment elsewhere.

This economic decline continued until the late 1930's and early 1940's when diversified farming was introduced and cattle raising and dairying became increasingly important. The farmers were introduced to scientific agricultural methods and learned how to prevent erosion, enrich and build up the soil, and make their farms more efficient and productive. During this time, Baton Rouge developed into a major industrial center. With the improvement of existing roads and the construction of new highways in the parish, many residents who were able to obtain employment in Baton Rouge continued to live in the parish and commute to their jobs.

In March of each year, the West Feliciana Historical Society sponsors the Audubon Pilgrimage which attracts several thousand "pilgrims" annually. The pilgrimage is dedicated to West Feliciana's most famous visitor, John James Audubon, who stayed in the parish for a period of only 23 months from 1821 to 1830, yet painted no less than 80 of his "Birds of America" during his stay *(27)*. He arrived unknown and penniless; he departed famous and solvent.

Industry

The Mississippi River provides a plentiful source of fresh water and a means of transportation for local industry. Although the only industries in the area are a paper mill, nuclear power plant, and a small refinery, the area has high potential for industrial expansion. Sand and gravel mining plays an important role in the economy of East and West Feliciana Parishes. Beautiful antebellum homes throughout West Feliciana Parish attract tourists from all over the United States.

Transportation Facilities

U.S. Highway 61 and many hard-surfaced state and parish highways serve East and West Feliciana Parishes. U.S. Highway 61 and Louisiana Highways 19 and 67 extend north and south through the parishes. Louisiana Highway 10 crosses the parishes in an east and west direction. The parishes are served by the Central, Gulf, South Shore, and Feliciana Eastern Railroads.

The Mississippi River forms most of the western boundary of the parishes. The river is a 19,000-mile water transportation system that serves much of the central part of the United States as well as the Gulf Coastal area (fig. 2).

Water Resources

Darwin Knochenmus, hydrologist, U.S. Geological Survey, Water Resources Division, Baton Rouge, Louisiana, prepared this section.

The Feliciana Parishes are endowed with a large quantity of ground water of excellent quality. Only along the Mississippi River and a few localized spots is the quality of water less than excellent. Because of its accessibility and good quality, ground water is the predominant source of supply by most users.

The Mississippi River forms the western boundary of West Feliciana and is the source of supply for industry and power generation. All other uses are supplied from ground water. The Feliciana Parishes are rural in nature and water resources are only slightly developed.

In 1990, 88 percent of all water used in the Feliciana Parishes was surface water. Even though most of the water withdrawn is surface water, it is the source of supply for only one industrial user and one power generating user.

Six and three-fourths million gallons per day (MGD) were pumped from three ground-water sources. About 0.4 MGD were pumped from the Chicot equivalent southeast

Figure 2.—The Mississippi River is used to transport goods and as a source of water supply.

Louisiana aquifer system, 3.25 MGD from the Evangeline equivalent southeast Louisiana aquifer system, and 3.1 MGD from the Jasper equivalent southeast Louisiana aquifer system. Of the 6.75 MGD, 57 percent was used for public supply, 22 percent for industry, 12 percent for rural uses, 6 percent for aquaculture, and 3 percent for irrigation *(28)*. Ground water was the sole source of water for public irrigation and rural supplies.

Ground Water

Freshwater occurs at great depths under the Feliciana Parishes. The greatest depth is in eastern East Feliciana Parish where freshwater extends to 2,400 feet below the land surface *(30, 31)*. Three major aquifer systems contain freshwater in the Feliciana Parishes *(31,39)*. From top to bottom, these are the Chicot equivalent southeast Louisiana aquifer system, Evangeline equivalent southeast Louisiana aquifer system, and Jasper equivalent southeast Louisiana aquifer system. In earlier reports, these three aquifer systems were subdivided into four units and were called, from top to bottom, Quarternary alluvium and upland deposits, Zone 1, Zone 2, and Zone 3. The aquifer systems are capable of yielding large quantities of good-quality water in the Feliciana Parishes, except in the alluvial areas along the Mississippi River and in the recharge areas where water is of a lesser quality. About 94 percent of the ground water used in the Feliciana Parishes is withdrawn in about equal amounts from the Evangeline equivalent and Jasper equivalent aquifer systems.

The thickness of the Chicot equivalent aquifer system ranges from zero in northwestern West Feliciana Parish to 300 feet in southeastern East Feliciana Parish and averages about 200 feet *(31,41)*. These aquifers are comprised mainly of medium- to coarse-grained sand. The aquifers are separated by irregular lenses and beds of clay. Because water in the deeper aquifers is of a better quality, the Chicot equivalent aquifer system has not been developed to the same extent, even though a properly designed well can produce 1,000 gallons per minute.

The Chicot equivalent aquifer system is virtually undeveloped in the Feliciana Parishes, except for domestic supplies. The Evangeline equivalent and Jasper equivalent aquifer systems are only slightly developed, with public supplies being the greatest user. Hydrologic characterization for the three aquifer systems are listed below *(31, 39, 41)*:

Chicot equivalent southeast Louisiana aquifer system

Average thickness of system—200 feet; combined sand units—200 feet
Aquifer material—medium- to coarse-grained sand separated by irregular clay beds
Well yield—1,000 gallons per minute from a properly designed well
Major use—domestic supply

Evangeline equivalent southeast Louisiana aquifer system

Average thickness of system—1,050 feet; combined sand units—350 feet
Aquifer material—fine- to medium-grained sand separated by irregular clay beds
Well yield—1,000 gallons per minute from a properly designed well
Major use—public supply

Jasper equivalent southeast Louisiana aquifer system

Average thickness of system—1,350 feet; combined sand units—300 feet
Aquifer material—fine- to medium-grained sand separated by clay beds
Well yield—1,000 gallons per minute from a properly designed well
Major use—public supply, industrial

There are about 500 large producing wells and observation wells in the Feliciana Parishes and many more domestic wells. For the most part, the major industrial wells are completed in the Jasper equivalent aquifer system.

Water in the Chicot equivalent aquifer system is recharged from rainfall throughout the Feliciana Parishes. Some of this water is discharged back to the surface in the valleys of the Mississippi River, Thompson Creek, Amite River, and numerous small streams. Also, some water leaks downward to recharge the Evangeline equivalent and Jasper equivalent aquifer systems. Recharge to the Evangeline equivalent and Jasper equivalent aquifer systems occurs just across the line in southern Mississippi. This leakage from one aquifer system to another provides a significant quantity of water which is available for discharge from a well.

Throughout the Feliciana Parishes, water levels in the uppermost aquifer system (Chicot equivalent) are from 50 to 250 feet above mean sea level. The differences in water level between the Chicot equivalent and Evangeline equivalent aquifer systems range between 15 and 30 feet. There is a similar water level difference between the Evangeline equivalent and Jasper equivalent aquifer systems. Under non-pumping conditions, the water level is highest in the upper aquifer and lowest in the lower aquifer indicating a downward movement of ground water.

Water in all three aquifer systems generally flows from north to south and southwest toward Baton Rouge. The movement of water at the water table is toward surface streams.

Water level fluctuations average 5 to 10 feet per year. The depth to water in wells is generally less than 100 feet depending on the elevation of the land surface and the proximity to a pumping well.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; and the kinds of crops and native plants growing on the soils. 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 from 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 in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil 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-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, distribution of plant roots, soil 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. 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 are generally collected for laboratory analyses. Soil scientists interpret the data from these analyses 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 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 assure 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.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by two or three kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. 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 soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils. In the general soil map units, they are called soils of minor extent.

Most inclusions have properties and behavioral patterns 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 (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

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

General Soil Map Units

The general soil map at the back of 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 and some minor soils. It is named for the major soils. The soils making up one 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 a 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.

The soils in the survey area vary widely in their suitability for major land uses.

Each map unit is rated for *cultivated crops, pastureland, woodland, urban uses,* and *recreational areas.* Cultivated crops are those grown extensively in the survey area. Pastureland refers to pastures of native and improved grasses for livestock. Woodland refers to areas of native or introduced trees. Urban uses include residential, commercial, and industrial developments. Intensive recreational areas are campsites, picnic areas, ballfields, and other areas that are subject to heavy foot traffic.

The boundaries of the general soil map units in East and West Feliciana Parishes were matched, where possible, with those of the previously completed surveys of Amite County, Mississippi, and East Baton Rouge and St. Helena Parishes, Louisiana. In a few places, however, the lines do not join and the names of the map units differ. These differences resulted mainly because of changes in soil series concepts, differences in map unit design, and changes in soil patterns near survey area boundaries.

Soils on Uplands and Terraces

The map units in this group consist of level to very steep, well drained to poorly drained, loamy soils on ridgetops and side slopes on uplands and terraces. Slopes range from 0 to 60 percent.

These map units make up about 68 percent of the survey area. Most of the acreage is pastureland or woodland. The soils have few limitations for timber production. Low fertility and steepness of slope are the main limitations for crops and pasture. Wetness, slope, and moderate to very slow permeability are limitations for most urban uses.

1. Lytle-Tangi

This map unit consists of gently sloping to strongly sloping soils on ridgetops and side slopes on uplands. The landscape is crossed by numerous small drainageways. The elevation ranges from about 170 to 350 feet above sea level. Slopes range from 1 to 3 percent on the ridgetops and from 3 to 8 percent on the side slopes.

This map unit makes up about 8 percent of the survey area. It is about 71 percent Lytle soils, 27 percent Tangi soils, and 2 percent soils of minor extent.

The Lytle soils are well drained. The surface layer is brown silt loam. The subsoil is yellowish red and reddish brown silty clay loam and loam and red sandy clay loam and sandy clay.

The Tangi soils are moderately well drained. They have a fragipan in the subsoil. The surface layer is brown or dark brown silt loam. The upper part of the subsoil is strong brown and yellowish brown, mottled silty clay loam and silt loam. The next part of the subsoil is a fragipan. It is brownish yellow, mottled silt loam and strong brown, mottled loam in the upper part and mottled strong brown and red clay loam and red clay in the lower part. The next layer of the subsoil is red sandy clay.

Of minor extent in this map unit are the Fluker, Guyton, Ochlockonee, Ouachita, and Ruston soils. Fluker soils are on local stream terraces and are somewhat poorly drained. Guyton, Ochlockonee, and Ouachita soils are on the narrow flood plains of streams. Guyton soils are poorly drained. Ruston soils are in positions similar to those of the Lytle soils.

The soils in this map unit are used mainly as woodland and pastureland. Small acreages are used as cropland or homesites.

These soils are well suited to use as woodland. Plant competition is the main concern.

These soils are well suited to use as pastureland and moderately well suited to cultivated crops.

The soils in this map unit dominantly are moderately well suited to urban and intensive recreational uses. The main limitations are low strength for roads; moderate, slow, or very slow permeability; moderate shrink-swell potential; wetness; and the hazard of erosion. The gently sloping Lytle soils are well suited to urban and intensive recreational uses.

2. Tangi

This map unit consists of gently sloping soils on ridgetops and moderately sloping or strongly sloping soils on side slopes on uplands. The soils in this map unit are moderately well drained. The elevation ranges from about 120 to 350 feet above sea level. Slopes range from 1 to 3 percent on the ridgetops and from 3 to 8 percent on the side slopes.

This map unit makes up about 18 percent of the survey area. It is about 85 percent Tangi soils and 15 percent soils of minor extent.

The Tangi soils have a surface layer of brown or dark brown silt loam. The upper part of the subsoil is strong brown and yellowish brown, mottled silty clay loam and silt loam. The next part of the subsoil is a fragipan. It is brownish yellow, mottled silt loam and strong brown, mottled loam and silt loam in the upper part and mottled strong brown and red clay loam and clay in the lower part. The next layer of the subsoil is red sandy clay.

Of minor extent in this map unit are the Bude, Fluker, Guyton, Kenefick, Ochlockonee, and Ouachita soils. Bude soils are on slightly convex ridgetops and are somewhat poorly drained. Fluker soils are somewhat poorly drained, and Kenefick soils are well drained. These soils are on terraces. Guyton soils are poorly drained, and Ochlockonee and Ouachita soils are well drained. These soils are on the flood plains of streams.

The soils in this map unit are used mainly as woodland and pastureland. Small acreages are used as cropland or homesites.

These soils are well suited to use as woodland. Plant competition is the main concern.

These soils are well suited to use as pastureland and moderately well suited to cultivated crops. Low fertility and the hazard of erosion are the main limitations.

The soils in this map unit are moderately well suited to urban and intensive recreational uses. The main limitations are low strength for roads, wetness, steepness of slope, moderate shrink-swell potential, and slow or very slow permeability.

3. Smithdale-Tangi

This map unit consists of gently sloping to steep soils on ridgetops, side slopes, and escarpments on uplands. The soils in this map unit are well drained. The landscape is crossed by numerous small drainageways. The elevation ranges from about 170 to 350 feet above sea level. Slopes range from 1 to 3 percent on the ridgetops and from 3 to 30 percent on the escarpments and side slopes.

This map unit makes up about 6 percent of the survey area. It is about 68 percent Smithdale soils, 30 percent Tangi soils, and 2 percent soils of minor extent.

The Smithdale soils are strongly sloping to steep. They are on escarpments and side slopes. The surface and subsurface layers are dark grayish brown sandy loam. The subsoil is red and yellowish red sandy clay loam and sandy loam.

The Tangi soils are gently sloping to strongly sloping. They are on ridgetops and side slopes. These soils have a fragipan in the subsoil. The surface layer is brown or dark brown silt loam. The upper part of the subsoil is strong brown and yellowish brown, mottled silty clay loam and silt loam. The next part of the subsoil is a fragipan. It is brownish yellow, mottled silt loam and strong brown, mottled loam and silt loam in the upper part and mottled strong brown and red clay loam and clay in the lower part. The next layer of the subsoil is red sandy clay.

Of minor extent in this map unit are the Guyton, Lytle, Ochlockonee, Ouachita, and Ruston soils. Guyton, Ochlockonee, and Ouachita soils are on the narrow flood plains of streams. Guyton soils are poorly drained. Lytle and Ruston soils are on ridgetops and side slopes.

The soils in this map unit are used mainly as woodland and pastureland. Small acreages are used as cropland or homesites.

The Smithdale soils are moderately well suited to use as woodland, and the Tangi soils are well suited to this use. Plant competition and the hazard of erosion are the main concerns.

The Smithdale soils generally are moderately well suited to use as pastureland and not suited to cultivated crops. The Tangi soils are well suited to use as pastureland and moderately well suited to cultivated crops. Low fertility and the hazard of erosion are the main limitations.

The Smithdale soils are poorly suited to urban and intensive recreational uses because of steepness of slope. The Tangi soils are moderately well suited to urban and intensive recreational uses. The main limitations are low strength for roads, slow or very slow permeability, moderate shrink-swell potential, and wetness.

4. Toula-Bude

This map unit consists of nearly level or gently sloping soils on ridgetops on uplands. These soils have a fragipan in the subsoil. The elevation ranges from about 120 to 140 feet above sea level. Slopes range from 0 to 3 percent.

This map unit makes up about 1 percent of the survey area. It is about 47 percent Toula soils, 35 percent Bude soils, and 18 percent soils of minor extent.

The Toula soils are gently sloping and moderately well drained. The surface layer is dark grayish brown silt loam. The subsoil is light yellowish brown silt loam and yellowish brown silty clay loam. The fragipan is yellowish brown silt loam. The lower part of the subsoil is yellowish brown, mottled clay loam.

The Bude soils are nearly level and somewhat poorly drained. The surface layer is brown silt loam. The subsurface layer is pale brown, mottled silt loam. The upper part of the subsoil is light yellowish brown and light brownish gray, mottled silt loam. The lower part of the subsoil is a mottled and multicolored fragipan. It is silt loam in the upper part, silty clay loam in the middle part, and silt loam in the lower part.

Of minor extent in this map unit are the Guyton, Lytle, Ochlockonee, and Ouachita soils. Guyton soils are poorly drained, and Ochlockonee and Ouachita soils are well drained. These soils are on flood plains. Lytle soils are on convex slopes and are well drained.

The soils in this map unit are used mainly as woodland and pastureland. Small acreages are used as cropland or homesites.

The Toula soils are well suited to use as woodland, and the Bude soils are moderately well suited to this use. The main concern in producing and harvesting timber is a restricted use of equipment caused by wetness. Competition from understory plants is an additional concern.

The soils in this map unit are well suited to use as pastureland and moderately well suited to cultivated crops. The main limitations are low fertility, wetness, and the hazard of erosion.

The Toula soils are moderately well suited to urban and most intensive recreational uses. The Bude soils are poorly suited to urban and most intensive recreational uses. The main limitations are low strength for roads, slow permeability, wetness, and the hazard of erosion.

5. Loring-Feliciana

This map unit consists of nearly level to gently sloping soils on ridgetops and moderately sloping to very steep soils on side slopes on uplands. The elevation ranges from about 130 to 300 feet above sea level. Slopes range from 0 to 40 percent.

This map unit makes up about 6 percent of the survey area. It is about 50 percent Loring soils, 32 percent Feliciana soils, and 18 percent soils of minor extent.

The Loring soils are gently sloping to strongly sloping and moderately well drained. They have a fragipan in the subsoil. The surface layer is brown silt loam. The next layer is yellowish brown silt loam. The subsoil is dark yellowish brown silt loam. The fragipan is dark yellowish brown and yellowish brown silt loam. The substratum is yellowish brown, mottled silt loam.

The Feliciana soils are nearly level to very steep and well drained. The surface layer is brown or dark brown silt loam. The subsoil is dark yellowish brown and yellowish brown silt loam and dark brown silty clay loam.

Of minor extent in this map unit are the poorly drained Calhoun soils on terraces and flood plains and the somewhat poorly drained Olivier soils on terraces.

The soils in this map unit are used about equally as cropland, pastureland, and woodland. The soils in steeply sloping areas are used mainly as woodland.

These soils dominantly are well suited to woodland. The soils in steeply sloping areas are moderately well suited to this use. Plant competition and a restricted use of equipment caused by wetness are management problems in areas of the Loring soils.

These soils dominantly are well suited to use as pastureland and moderately well suited to cultivated crops. The soils in steeply sloping areas are poorly suited to use as pastureland and are not suited to cultivated crops. Medium or low fertility and the hazard of erosion are the main concerns.

The soils in this map unit dominantly are moderately well suited to urban and intensive recreational uses. The main limitations are moderate or slow permeability, wetness, low strength for roads, and steepness of slope. The level or very gently sloping Feliciana soils are well suited to urban and intensive recreational uses.

6. Loring-Olivier

This map unit consists of nearly level to strongly sloping soils on uplands and terraces. These soils have a fragipan in the subsoil. The elevation ranges from 150 to 250 feet above sea level. Slopes range from 0 to 8 percent.

This map unit makes up about 8 percent of the survey area. It is about 91 percent Loring soils, 8 percent Olivier soils, and 1 percent soils of minor extent.

The Loring soils are gently sloping to strongly sloping and moderately well drained. They are on ridgetops and side slopes on uplands. The surface layer is brown silt loam. The next layer is yellowish brown silt loam. The subsoil, above the fragipan, is dark yellowish brown silt loam. The fragipan is dark yellowish brown and yellowish brown silt loam. The substratum is yellowish brown, mottled silt loam.

The Olivier soils are nearly level to gently sloping and somewhat poorly drained. They are on terraces. The surface layer is dark grayish brown or brown silt loam. The subsurface layer is light yellowish brown, mottled silt loam. The subsoil, above the fragipan, is yellowish brown, mottled silt loam. The fragipan is yellowish brown silt loam. It is mottled in the upper part.

Of minor extent in this map unit are the poorly drained Calhoun soils on broad flats, in depressional areas, and along drainageways and the well drained Feliciana soils on convex ridgetops and side slopes.

The soils in this map unit are used about equally as pastureland, cropland, and woodland. A small acreage is used as homesites.

These soils are well suited to use as woodland. Plant competition and a restricted use of equipment during wet periods are the main concerns.

These soils are well suited to use as pastureland and moderately well suited to cultivated crops. Wetness in level areas and the hazard of erosion in strongly sloping areas are the main limitations. Low or medium fertility is an additional concern.

The soils in this map unit dominantly are moderately well suited to urban and intensive recreational uses. The main limitations are wetness, slow permeability, and low strength for roads. The Olivier soils are poorly suited to urban uses mainly because of wetness.

7. Feliciana-Natchez

This map unit consists of nearly level to very steep soils on uplands. The soils in this map unit are well drained. The landscape in most areas is one of long, smooth slopes on interstream divides and complex, short slopes along deeply incised drainageways. Slopes range from 0 to 60 percent.

This map unit makes up about 14 percent of the survey area. It is about 72 percent Feliciana soils, 24 percent Natchez soils, and 4 percent soils of minor extent.

The Feliciana soils are nearly level to very steep. The surface layer is brown or dark brown silt loam. The subsoil is dark yellowish brown and yellowish brown silt loam and dark brown silty clay loam.

The Natchez soils are moderately steep to very steep. The surface layer is dark grayish brown silt loam. The subsurface layer is yellowish brown silt loam. The subsoil and substratum are yellowish brown silt loam.

Of minor extent in this map unit are the Loring and Olivier soils on ridgetops and terraces.

The soils in this map unit are used mainly as woodland, cropland, and pastureland. The soils in steeply sloping areas are used as woodland. Small acreages are used as homesites.

These soils dominantly are well suited to woodland. The soils in steeply sloping areas are only moderately well suited to use as woodland because of the hazard of erosion and an equipment use limitation.

These soils dominantly are well suited to use as pastureland and moderately well suited to cultivated crops. The soils in steeply sloping areas generally are poorly suited to use as pastureland and not suited to cultivated crops. Steepness of slope and the hazard of erosion are the main limitations.

The soils in this map unit dominantly are well suited to urban and intensive recreational uses. The soils in steeply sloping areas are poorly suited to urban and intensive recreational uses. Low strength for roads and steepness of slope are the main limitations.

8. Fluker

This map unit consists of nearly level to gently sloping soils on broad flats on terraces. The soils in this map unit are somewhat poorly drained and are subject to rare flooding. These soils have a fragipan in the subsoil. The elevation ranges from about 100 to 210 feet above sea level. Slopes range from 0 to 2 percent.

This map unit makes up about 2 percent of the survey area. It is about 75 percent Fluker soils and 25 percent soils of minor extent.

The Fluker soils have a surface layer of dark brown silt loam. The subsoil is light yellowish brown, mottled silt loam and yellowish brown, mottled silty clay loam. The fragipan is strong brown, mottled loam in the upper part; strong brown and yellowish brown loam in the middle part; and yellowish brown, mottled sandy loam in the lower part.

Of minor extent in this map unit are the Dexter, Guyton, Kenefick, Ochlockonee, and Ouachita soils and areas of Pits and Arents. Dexter and Kenefick soils are on convex ridges and are well drained. Guyton soils are poorly drained, and Ochlockonee and Ouachita soils are well drained. These soils are on flood plains. Pits are the excavations from which sand or gravel was removed, and Arents are the spoil banks around the pits.

The soils in this map unit are used mainly as woodland or pastureland. Small acreages are used as cropland or homesites.

These soils are moderately well suited to woodland. Plant competition and a restricted use of equipment caused by wetness are the main limitations.

These soils are well suited to use as pastureland and moderately well suited to cultivated crops. Low fertility and wetness are the main limitations.

The soils in this map unit are poorly suited to urban and intensive recreational uses. The main limitations are wetness, low strength for roads, slow permeability, and the hazard of flooding.

9. Loring-Olivier-Calhoun

This map unit consists of level to strongly sloping soils on broad flats, in depressional areas, along small drainageways, on ridgetops, and on side slopes on uplands and terraces. Some soils are on flood plains and are subject to flooding. The elevation ranges from 90 to 125 feet above sea level. Slopes range from 0 to 8 percent.

This map unit makes up about 4 percent of the survey area. It is about 50 percent Loring soils, 28 percent Olivier soils, 16 percent Calhoun soils, and 6 percent soils of minor extent.

The Loring soils are gently sloping to strongly sloping and moderately well drained. They are on ridgetops and side slopes on uplands. These soils have a fragipan in the subsoil. The surface layer is brown silt loam. The next layer is yellowish brown silt loam. The subsoil, above the fragipan, is dark yellowish brown, mottled silt loam. The fragipan is dark yellowish brown and yellowish brown silt loam. The substratum is yellowish brown, mottled silt loam.

The Olivier soils are nearly level to gently sloping and somewhat poorly drained. These soils are on broad, slightly convex ridges; low, narrow ridges; and on side slopes on terraces. These soils have a fragipan in the subsoil. The surface layer is dark grayish brown or brown silt loam. The subsurface layer is light yellowish brown, mottled silt loam. The subsoil, above the fragipan, is yellowish brown, mottled silt loam. The fragipan is yellowish brown silt loam. It is mottled in the upper part.

The Calhoun soils are level and poorly drained. They are on broad flats, in depressional areas, along small drainageways, and on flood plains. These soils are subject to rare to frequent flooding. The surface layer is dark grayish brown silt loam. The subsurface layer is light brownish gray, mottled loam and light gray, mottled silt loam. The next layer is light brownish gray and grayish brown, mottled silt loam. The subsoil is grayish brown, mottled silt loam and silty clay loam.

Of minor extent in this map unit are the Deerford and Feliciana soils. Deerford soils are in positions similar to those of the Olivier soils. Feliciana soils are on convex ridgetops and side slopes on uplands.

The soils in this map unit are used mainly as cropland and pastureland. Small acreages are used as woodland or homesites. The soils in steeply sloping areas are used mainly as woodland.

The Loring and Olivier soils are well suited to use as woodland, and the Calhoun soils are moderately well suited to this use. The main concerns in producing and harvesting timber are an equipment use limitation and seedling mortality caused by wetness and flooding. Competition from understory plants is an additional concern.

The Loring and Olivier soils are well suited to use as pastureland and moderately well suited to cultivated crops. The Calhoun soils are well suited or moderately well suited to use as pastureland and moderately well suited or poorly suited to cultivated crops. The Calhoun soils that are subject to frequent flooding generally are not suited to cultivated crops, and the Calhoun soils that are subject to occasional flooding are poorly suited to cultivated crops. The main limitations are wetness, low or medium fertility, and the hazard of erosion.

The soils in this map unit dominantly are moderately well suited to urban and intensive recreational uses. The main limitations are wetness, slow permeability, moderate shrink-swell potential, low strength for roads, and the hazard of flooding. The hazard of erosion is an additional concern in sloping areas of the Loring soils. The Olivier and Calhoun soils are poorly suited to urban and recreational uses because of wetness.

10. Feliciana-Weyanoke

This map unit consists of nearly level to gently sloping soils on broad, convex ridgetops or ridges and on side slopes on uplands and terraces. The soils in this map unit are well drained. Some soils are subject to rare flooding. Slopes range from 0 to 3 percent.

This map unit makes up about 3 percent of the survey area. It is about 56 percent Feliciana soils, 38 percent Weyanoke soils, and 6 percent soils of minor extent.

The Feliciana soils are nearly level to gently sloping. They are on convex ridgetops and on side slopes on uplands. The surface layer is brown or dark brown silt loam. The subsoil is dark yellowish brown and yellowish brown silt loam and dark brown silty clay loam.

The Weyanoke soils are gently sloping. They are on convex ridges on terraces. These soils are subject to rare flooding. The surface layer is brown silt. The subsoil is yellowish brown silt in the upper part and dark yellowish brown silt in the lower part. The substratum is yellowish brown, mottled silt loam.

Of minor extent in this map unit are the Loring soils on ridgetops and side slopes on uplands and the Olivier soils on ridges and side slopes on terraces.

The soils in this map unit are used mainly as cropland and pastureland. Small acreages are used as woodland or homesites.

These soils are well suited to use as woodland. Plant competition is the only concern.

These soils dominantly are well suited to pastureland and cultivated crops. Medium or low fertility and the hazard of erosion are the main limitations.

The Feliciana soils dominantly are well suited to urban and intensive recreational uses. Moderate permeability and low strength for roads are the main limitations. The Weyanoke soils are poorly suited to urban uses and moderately well suited to intensive recreational uses mainly because of the hazard of flooding and wetness.

Soils on Flood Plains

The map units in this group consist of level to undulating, excessively drained to very poorly drained, loamy and clayey soils on flood plains. The soils are subject to flooding unless they are protected by levees. Slopes range from 0 to 5 percent.

These map units make up about 32 percent of the survey area. Most of the acreage is in bottomland hardwoods. Areas that are protected from flooding are used mainly as cropland or pastureland. Small acreages are used as homesites. Wetness, low strength for roads, low fertility, high or very high shrink-swell potential, and the hazard of flooding are the main limitations.

11. Ouachita-Ochlockonee-Guyton

This map unit consists of level or gently undulating soils on flood plains of streams. These soils are subject to frequent flooding. The elevation ranges from about 80 to 200 feet above sea level. Slopes range from 0 to 3 percent.

This map unit makes up about 10 percent of the survey area. It is about 37 percent Ouachita soils, 32 percent Ochlockonee soils, 21 percent Guyton soils, and 10 percent soils of minor extent.

The Ouachita soils are gently undulating and well drained. They are on low ridges. The surface layer is brown silt loam. The subsoil is dark yellowish brown and yellowish brown silt loam and silty clay loam. It is mottled in the lower part. The substratum is mottled yellowish brown and light brownish gray fine sandy loam.

The Ochlockonee soils are gently undulating and well drained. They are on low ridges. The surface layer is brown fine sandy loam. The underlying material is yellowish brown and dark yellowish brown sandy loam and light yellowish brown loam.

The Guyton soils are level and poorly drained. They are in low positions between ridges. The surface layer is dark grayish brown silt loam. The subsurface layer is light brownish gray, mottled silt loam. The next layer is gray, mottled silty clay loam and silt loam. The subsoil is gray and mottled. It is silty clay loam in the upper part and clay loam in the lower part.

Of minor extent in this map unit are the Fluker and Kenefick soils on nearby stream terraces. Fluker soils are on broad flats and are somewhat poorly drained. Kenefick soils are on convex ridges.

The soils in this map unit are used mainly as woodland. Small acreages are used as pastureland.

These soils are moderately well suited to bottomland hardwoods. The main concerns in producing and harvesting timber are seedling mortality and an equipment use limitation caused by wetness and flooding.

These soils are poorly suited to use as pastureland. The main limitations are wetness, low fertility, and the hazard of flooding.

The soils in this map unit generally are not suited to cultivated crops, urban uses, or intensive recreational uses. Wetness and the hazard of flooding generally are too severe for these uses.

12. Calhoun-Cascilla

This map unit consists of level to gently sloping soils on broad flats and low ridges on flood plains. These soils are subject to frequent flooding. The elevation ranges from about 80 to 200 feet above sea level. Slopes range from 0 to 2 percent.

This map unit makes up about 2 percent of the survey area. It is about 47 percent Calhoun soils, 30 percent Cascilla soils, and 23 percent soils of minor extent.

The Calhoun soils are level and poorly drained. They are in low positions between ridges. The surface layer is dark grayish brown silt loam. The subsurface layer is grayish brown, mottled silt loam. The subsoil is gray, mottled silty clay loam and silt loam.

The Cascilla soils are nearly level to gently sloping and well drained. They are on low ridges. The surface layer is brown silt loam. The subsoil is dark yellowish brown and yellowish brown silt loam. It is mottled in the lower part.

Of minor extent in this map unit are the Deerford, Loring, and Olivier soils on terraces and uplands. Deerford and Olivier soils are somewhat poorly drained, and Loring soils are moderately well drained. Also, of minor extent are the Calhoun soils on terraces. These soils are subject to occasional flooding.

The soils in this map unit are used mainly as woodland. Small acreages are used as pastureland.

These soils are moderately well suited to bottomland hardwoods. The main concerns in producing and harvesting timber are seedling mortality and an equipment use limitation caused by wetness and flooding.

These soils are poorly suited to use as pastureland because of wetness and the hazard of flooding.

The soils in this map unit generally are not suited to cultivated crops, urban uses, or intensive recreational uses. Wetness and the hazard of flooding generally are too severe for these uses.

13. Morganfield-Bigbee

This map unit consists of nearly level to gently sloping soils on low, convex ridges on low terraces and on flood plains. These soils are subject to occasional flooding. The elevation ranges from about 40 to 200 feet above sea level. Slopes range from 0 to 2 percent.

This map unit makes up about 3 percent of the survey area. It is about 67 percent Morganfield soils, 32 percent Bigbee soils, and 1 percent soils of minor extent.

The Morganfield soils are well drained. The surface layer is brown silt loam. The underlying material is yellowish brown. It is silt in the upper part, silt loam in the middle part, and very fine sandy loam in the lower part.

The Bigbee soils are excessively drained. The surface layer is brown loamy sand. The underlying material is light yellowish brown and yellowish brown loamy sand and sand.

Of minor extent in this map unit are the Weyanoke soils on terraces.

The soils in this map unit are used mainly as woodland. Small acreages are used as pastureland or recreation.

These soils are moderately well suited to use as woodland. The main concerns in producing and harvesting timber are seedling mortality and an equipment use limitation caused by flooding.

These soils are poorly suited to pastureland and cultivated crops. The main limitations are medium or low fertility, soil droughtiness, and the hazard of flooding.

The soils in this map unit are poorly suited to urban and intensive recreational uses. Wetness and the hazard of flooding are the main limitations. Droughtiness is a limitation for plant growth on Bigbee soils.

14. Commerce-Sharkey-Convent

This map unit consists of level or nearly level soils on natural levees of the Mississippi River and its distributaries. These soils are protected from flooding by levees or flood only rarely. The elevation ranges from about 40 to 50 feet above sea level. Slopes range from 0 to 1 percent.

This map unit makes up about 2 percent of the survey area. It is about 33 percent Commerce soils, 30 percent Sharkey soils, 16 percent Convent soils, and 21 percent soils of minor extent.

The Commerce soils are level or nearly level and somewhat poorly drained. They are in intermediate and high positions on natural levees. The surface layer is dark brown silt loam. The subsoil is grayish brown, mottled silt loam. The substratum is grayish brown, mottled silty clay loam.

The Sharkey soils are level and poorly drained. They are in intermediate and low positions on natural levees. These soils are subject to rare flooding. The surface layer is very dark grayish brown clay. The next layer is very dark grayish brown, mottled clay. The subsoil is dark gray and gray, mottled clay.

The Convent soils are level or nearly level and somewhat poorly drained. They are in high positions on natural levees. The surface layer is dark grayish brown silt loam. The next layer is brown very fine sandy loam. The underlying material is grayish brown very fine sandy loam in the upper part; grayish brown, mottled silt loam in the middle part; and dark grayish brown silt loam in the lower part.

Of minor extent in this map unit are the Tunica soils on low ridges.

The soils in this map unit are used mainly as cropland or pastureland. Small acreages are used as woodland or homesites.

These soils are well suited to the production of hardwood trees, although wetness can limit the use of equipment.

These soils are well suited to pastureland and cultivated crops. Wetness is the main limitation. Poor tilth is a problem in areas of the Sharkey soil.

The soils in this map unit are moderately well suited to urban and intensive recreational uses. These soils are poorly suited to sanitary facilities. The main limitations are wetness, moderately slow and very slow permeability, low strength for roads, and shrinking and swelling of the subsoil. Sharkey soils are also subject to rare flooding during unusually wet periods.

15. Commerce-Robinsonville-Convent

This map unit consists of gently undulating and undulating soils on flood plains. These soils are subject to occasional or frequent flooding, scouring, and deposition.

This map unit makes up about 5 percent of the survey area. It is about 39 percent Commerce soils, 25 percent Robinsonville soils, 20 percent Convent soils, and 16 percent soils of minor extent.

The Commerce soils are somewhat poorly drained. They are in high or intermediate positions on natural levees and on deltaic fans. The surface layer is dark grayish brown silt loam or silty clay loam. The subsoil is grayish brown, mottled silt loam. The substratum is grayish brown, mottled silty clay loam.

The Robinsonville soils are well drained. They are on low, convex ridges on natural levees. The surface layer is brown fine sandy loam. The underlying material is brown loamy fine sand and fine sandy loam.

The Convent soils are somewhat poorly drained. They are in shallow swales on natural levees. The surface layer is dark grayish brown silt loam. The underlying material is grayish brown silt loam and silty clay loam.

Of minor extent in this map unit are the Sharkey soils in swales and the Tunica soils on low ridges.

The soils in this map unit are mainly in bottomland hardwoods. A few areas are used as pastureland or cropland.

These soils are moderately well suited to use as woodland. The main concerns in producing and harvesting timber are an equipment use limitation and seedling mortality caused by flooding and wetness.

The soils in this map unit that are occasionally flooded generally are moderately well suited to pastureland and cultivated crops. The soils in this map unit that are frequently flooded are poorly suited to pastureland and generally are not suited to cultivated crops.

The soils in this map unit dominantly are poorly suited to urban and intensive recreational uses. The soils that are frequently flooded generally are not suited to these uses.

16. Sharkey-Tunica-Fausse

This map unit consists of level to undulating soils in low positions on natural levees, on low ridges, and in swales and backswamps on flood plains. These soils are subject to occasional or frequent flooding or are ponded most of the time. Slopes range from 0 to 3 percent.

This map unit makes up about 9 percent of the survey area. It is about 32 percent Sharkey soils, 32 percent Tunica soils, 16 percent Fausse soils, and 20 percent soils of minor extent.

The Sharkey soils are level and poorly drained. They are in low positions on natural levees and in swales. The surface layer is very dark gray or dark grayish brown clay. The subsoil is dark gray or gray, mottled clay. The substratum is gray, mottled clay.

The Tunica soils are poorly drained. They are on low, undulating ridges. The surface layer is dark grayish brown clay. The subsoil is gray, mottled clay in the upper part and grayish brown, mottled silty clay in the lower part. The substratum is light brownish gray, mottled loam.

The Fausse soils are level. They are on backswamps. They are frequently flooded and ponded most of the time. The surface layer is very dark gray clay. The subsoil is gray and dark gray clay. The substratum is gray and greenish gray clay.

Of minor extent in this map unit are the Commerce and Convent soils in high or intermediate positions on natural levees, in shallow swales, and on deltaic fans.

The soils in this map unit are used mainly as woodland or pastureland. Small acreages are used as cropland.

These soils dominantly are moderately well suited to use as woodland. The Fausse soils are poorly suited to use as woodland. The main concerns in producing and harvesting timber are an equipment use limitation and seedling mortality caused by flooding and wetness.

The soils in this map unit are poorly suited to use as pastureland and generally are not suited to cultivated crops or urban and intensive recreational uses because of the hazard of flooding. The soils that are subject to occasional flooding are poorly suited to these uses.

17. Latanier-Moreland

This map unit consists of nearly level to undulating soils on low ridges and in swales on natural levees and on the flood plains of the Red River. The soils in this map unit are somewhat poorly drained. These soils are subject to occasional flooding. Slopes dominantly range from less than 1 percent in swales to 5 percent on the ridges.

This map unit makes up about 1 percent of the survey area. It is about 52 percent Latanier soils, 26 percent Moreland soils, and 12 percent soils of minor extent.

The Latanier soils are on low, undulating ridges. The surface layer is dark brown clay. The subsoil is dark reddish brown and reddish brown clay. The substratum is stratified reddish brown silt loam and very fine sandy loam.

The Moreland soils are nearly level and in swales between ridges. The surface layer is dark reddish brown clay. The subsoil is reddish brown and dark reddish brown clay.

Of minor extent in this map unit are the Commerce, Convent, and Robinsonville soils on natural levees.

The soils in this map unit are used mainly as woodland and cropland.

These soils are moderately well suited to use as woodland and pastureland and poorly suited to cultivated crops. The main limitations are wetness, poor tilth, and the hazard of flooding. The main concerns for producing and harvesting timber are an equipment use limitation and seedling mortality caused by wetness and flooding.

The soils in this map unit are poorly suited to urban and intensive recreational uses. The main limitations are wetness, the hazard of flooding, very slow permeability, low strength for roads, and shrinking and swelling of the subsoil.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under the heading "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, 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 or of the underlying material. They also can differ in slope, salinity, wetness, flooding hazard, 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, Calhoun silt loam is a phase of the Calhoun series.

Some map units are made up of two or more major soils. These map units are called soil complexes or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Tunica-Sharkey complex, undulating, is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Morganfield and Bigbee soils, frequently flooded, is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Riverwash is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

The boundaries of map units in East and West Feliciana Parishes were matched, where possible, with those of the previously completed surveys of Amite County, Mississippi, and East Baton Rouge and St. Helena Parishes, Louisiana. In a few places, the lines do not join and there are differences in names of the map units. These differences result mainly from changes in soil series concepts, differences in map unit design, and changes in soil patterns near survey area boundaries.

All of the soils in East and West Feliciana Parishes were mapped at the same level of detail, except for those moderately steep and steep soils on uplands and those soils on bottomlands that are subject to occasional flooding or frequent flooding. The steepness and irregularity of slope and the hazard of flooding limit the use and management of the soils, and separating all of the soils in these areas would be of little importance to the land user.

AR—Arat muck

This level, very poorly drained, very fluid soil is in abandoned stream channels and in backswamps. It is ponded most of the time and frequently flooded. The areas of this soil are irregular in shape and range to 100 acres. Fewer observations were made than in other map units.

The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface layer is very dark grayish brown, very fluid muck about 5 inches thick. The next layer is dark gray, very fluid silt loam about 7 inches thick. The underlying material to a depth of about 60 inches is gray, very fluid silty clay loam. Fragments of wood are throughout the soil.

This soil is high in natural fertility. It is frequently flooded for very long periods. Depth of floodwater ranges from 3 to 7 feet. During non-flood periods, the water table ranges from 0.5 foot below the soil surface to 3 feet above the surface. This soil has low strength or capacity to support a load. Permeability is slow. Unless this soil is drained, the shrink-swell potential is low. After drainage, the shrink-swell potential becomes moderate.

Included with this soil in mapping are a few large areas of Bigbee and Morganfield soils. These soils are in higher positions than the Arat soil and are loose or very friable throughout. The included soils make up about 5 percent of the map unit.

Most of the acreage of this soil is in woodland and is used as habitat for wetland wildlife and for extensive recreation, such as hunting.

The natural vegetation consists mainly of water-tolerant trees and aquatic understory plants. The common trees are baldcypress and water tupelo. Understory and aquatic vegetation consists mainly of alligatorweed, water hyacinth, bulltongue, arrowhead, duckweed, and pickerelweed. Natural regeneration of baldcypress and water tupelo trees is very slow. In places, most of the trees have been harvested and only open-water or aquatic understory plants remain.

This soil is poorly suited to use as woodland. Few areas are managed for timber production because trees grow slowly and special equipment is needed to harvest the timber. The regeneration of trees generally is only on rotting logs, stumps, and root mats. Seedling mortality is severe because of ponding and flooding. This soil cannot support the load of most types of harvesting equipment.

This soil is not suited to crops and pasture. Ponding, flooding, and low strength are too severe for these uses. This soil generally is too soft and boggy to support livestock grazing.

This soil is not suited to urban and intensive recreational uses. Ponding, flooding, and low strength are too severe for these uses. Drainage and protection from flooding are possible only by constructing large water-control structures. Drainage ditches are difficult to construct because stumps and logs are buried in the soil. In addition, if this soil is drained, subsidence is a problem.

This soil is well suited to use as habitat for wetland wildlife. It provides roosting areas for migratory ducks and both food and nesting sites for wood ducks, squirrel, alligators, and nongame birds. This soil also provides suitable habitat for large numbers of crawfish and furbearers, such as raccoon, nutria, and mink. Water-control structures designed for intensive wildlife management are difficult to construct because of the instability and fluid nature of the soil materials. Hunting of waterfowl is a popular sport in most areas of this map unit.

This Arat soil is in capability subclass VIIIw. The woodland ordination symbol is 5W.

Bd—Bude silt loam, 0 to 2 percent slopes

This nearly level to gently sloping, somewhat poorly drained soil is on slightly convex ridgetops on uplands. The areas of this soil range from 20 to 100 acres.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsurface layer to a depth of about 11 inches is pale brown, mottled silt loam. The subsoil to a depth of about 20 inches is light yellowish brown, mottled silt loam. The next part of the subsoil to a depth of about 24 inches is light brownish gray and light yellowish brown, mottled silt loam. Below this, to a depth of about 60 inches, is a mottled and multicolored fragipan. It is silt loam in the upper part, silty clay loam in the middle part, and silt loam in the lower part.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through the upper part of this soil at a moderate rate and through the fragipan at a slow rate. Water runs off the surface at a slow rate. A perched water table ranges from about 0.5 foot to 1.5 feet below the soil surface during January through April. The effective rooting depth is limited by the fragipan. The available water capacity is moderate or high. In some years, plants are damaged by a shortage of water during dry periods in summer and fall. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Tangi and Toula soils. These soils are in higher positions on the landscape than the Bude soil and do not have gray mottles in the upper part of the subsoil. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland or pastureland. A small acreage is used as cropland or homesites.

This soil is moderately well suited to use as woodland. The potential for the production of loblolly pine and slash pine trees is high (fig. 3). The main concerns in producing and harvesting timber are a moderate equipment use limitation caused by wetness. Severe competition by understory plants is an additional concern. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted

Figure 3.— Pine trees grow well in areas of Bude silt loam, 0 to 2 percent slopes.

weeds, brush, or trees. Conventional methods of harvesting timber can be used except during rainy periods, generally from January to April. Soil compaction can be reduced by using suitable logging systems, laying out skid trails in advance, and harvesting timber when the soil is least susceptible to compaction.

This soil is well suited to pasture. The main limitations are wetness and low fertility. The main suitable pasture plants are bahiagrass, common bermudagrass, white clover, winter peas, vetch, tall fescue, and ryegrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are wetness, low fertility, and potentially toxic levels of exchangeable aluminum in the root zone. The main suitable crops are corn, grain sorghum, and truck crops. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Field ditches and suitable outlets help to remove excess surface water. Crops respond well to lime and fertilizer, which help to overcome the low fertility and reduce the high levels of exchangeable aluminum.

This soil is poorly suited to urban development. It has severe limitations for building sites, local roads and streets, and most sanitary facilities. The main limitations are wetness and low strength for roads and streets. Wetness is a limitation for dwellings, commercial buildings, and local roads and streets. Excess water can be removed by shallow ditches and by providing the proper grade. Slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. Lagoons or self-contained disposal units can be used to dispose of sewage properly. Drainage can improve this soil for most lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens.

This soil is poorly suited to recreational uses, mainly because of wetness. Good drainage improves this soil for intensively used recreation areas. Plant cover can be maintained by fertilizing and by controlling traffic.

This soil is well suited to use as habitat for deer, rabbit, quail, turkey, dove, and numerous nongame birds. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants.

This Bude soil is in capability subclass IIw. The woodland ordination symbol is 10W.

Ca—Calhoun silt loam

This level, poorly drained soil is on broad flats and in slightly depressional areas on terraces. It is subject to rare flooding. The areas of this soil are irregular in shape and range from 10 to 200 acres. Slopes are less than 1 percent.

Typically, the surface layer is grayish brown silt loam about 7 inches thick. The subsurface layer to a depth of about 20 inches is light brownish gray, mottled silt loam in the upper part and light gray, mottled silt loam in the lower part. The next layer to a depth of about 31 inches is light brownish gray and grayish brown, mottled silt loam. The subsoil to a depth of about 60 inches is grayish brown, mottled silt loam in the upper part; silty clay loam in the middle part; and silt loam in the lower part.

This soil has medium fertility and moderately high levels of exchangeable aluminum in the root zone. Water and air move through this soil at a slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from the soil surface to 1.5 feet below the soil surface during December through April. The available water capacity is high or very high. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Deerford, Loring, and Olivier soils. These soils are in higher positions on the landscape than the Calhoun soil. Deerford soils have high levels of exchangeable sodium in the lower part of the subsoil. Loring and Olivier soils have a fragipan. The included soils make up about 10 percent of the map unit.

This soil is used mainly as pastureland. A small acreage is used as woodland, cropland, urban land, or recreation areas.

This soil is moderately well suited to use as woodland. The potential for the production of loblolly pine and slash pine trees is high. The main concerns in producing and harvesting timber are moderate seedling mortality and equipment use limitation caused by wetness and severe competition from understory plants. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Drainage or special site preparation, such as harrowing and bedding, will help to establish seedlings, reduce seedling mortality, and increase early seedling growth. Conventional methods of harvesting timber generally can be used except during rainy periods, generally from December to April.

This soil is moderately well suited to pasture. It is limited mainly by wetness. Excess water on the surface can be removed by field ditches and suitable outlets. The main suitable pasture plants are common bermudagrass, dallisgrass, bahiagrass, white clover, and southern wild winter peas. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are wetness, medium fertility, and moderately high levels of exchangeable aluminum. The main suitable crops are soybeans, corn, and truck crops. This soil is friable and easy to keep in good tilth. Crusting of the surface may result during dry periods. Proper row arrangement, field ditches, and suitable outlets help to remove excess surface water. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth. Crops respond well to lime and fertilizer, which help to improve fertility and reduce the levels of exchangeable aluminum.

This soil is poorly suited to urban development. It has severe limitations for building sites, local roads and streets, and most sanitary facilities. The main limitations are wetness, slow permeability, moderate shrink-swell potential, and low strength for roads and streets. Flooding is a hazard. Excess water can be removed by shallow ditches and by providing the proper grade. Selection of adapted vegetation is critical for the establishment of lawns, shrubs, trees, and vegetable gardens. Roads and streets can be strengthened to offset the limited ability of the soil to support a load. Slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. Where flooding is controlled, lagoons or self-contained disposal units can be used to dispose of sewage properly. The footings and foundations of buildings can be strengthened to prevent structural damage as a result of shrinking and swelling. Flooding can be reduced by levees, dikes, and water pumps.

This soil is poorly suited to recreational uses. The main limitation is wetness, and flooding is a hazard. Good drainage can improve this soil for most recreational uses.

This soil is well suited to use as habitat for wetland wildlife, such as ducks and furbearers, and moderately well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants.

This Calhoun soil is in capability subclass IIIw. The woodland ordination symbol is 9W.

Cb—Calhoun silt loam, occasionally flooded

This level, poorly drained soil is in broad depressional areas and along drainageways on terraces. It is subject to occasional flooding for brief to long periods. The areas of this soil are irregular in shape and range from 20 to 100 acres. Slopes are less than 1 percent.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The subsurface layer to a depth of about 12 inches is light brownish gray silt loam. The next layer to a depth of about 22 inches is gray silty clay loam and light brownish gray, mottled silt loam. The subsoil to a depth of about 60 inches is light brownish gray and grayish brown, mottled silty clay loam.

This soil has medium fertility and moderately high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from the soil surface to 1.5 feet below the soil surface during December through April. The available water capacity is high or very high. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Loring and Olivier soils. These soils are in higher positions on the landscape than the Calhoun soil and have a fragipan. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland or pastureland. A small acreage is used as cropland, urban land, or recreation areas.

This soil is moderately well suited to use as woodland. The potential for the production of loblolly pine and slash pine trees is high. The main concerns in producing and harvesting timber are a severe equipment use limitation and moderate seedling mortality caused by flooding and wetness. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Trees should be water-tolerant, and they should be planted or harvested during dry periods. Conventional methods of harvesting timber generally can be used except during rainy periods, generally from December to April. Unless drainage is provided, seedling mortality is high.

This soil is moderately well suited to pasture. The main limitation is wetness, and flooding is a hazard. Excess water on the surface can be removed by field ditches and suitable outlets. Wetness limits the choice of plants and the period of grazing. The main suitable pasture plants are common bermudagrass, dallisgrass, bahiagrass, white clover, and wild winter peas. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes. During flood periods, cattle can be moved to adjacent protected areas or to pastures at a higher elevation.

This soil is poorly suited to crops. The main management concerns are the hazard of flooding, wetness, medium fertility, and potentially toxic levels of exchangeable aluminum in the root zone. This soil is friable and easy to keep in good tilth; however, the surface tends to crust during dry periods. Flooding can be controlled, but only by major flood-control structures, such as levees. Proper row arrangement, field ditches, and suitable outlets help to remove excess surface water. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth. Crops respond well to lime and fertilizer, which help to overcome the medium fertility and reduce the moderately high levels of exchangeable aluminum.

This soil is poorly suited to urban development and generally is not suited to use as homesites because of the hazard of flooding. It has severe limitations for building sites, local roads and streets, and most sanitary facilities. The main limitations are wetness, moderate shrink-swell potential, slow permeability, and low strength for roads and streets. Drainage is needed if roads and building foundations are constructed. Excess water can be removed by shallow ditches and by providing the proper grade. Roads and streets should be located above the expected flood level. Slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. Where flooding is controlled, lagoons or self-contained disposal units can be used to dispose of sewage properly.

This soil is poorly suited to recreational uses. The main limitation is wetness, and flooding is a hazard. Drainage and flood-control structures are needed for intensively used recreation areas, such as camp areas and playgrounds.

This soil is well suited to use as habitat for wetland wildlife and moderately well suited to use as habitat for woodland and openland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants.

This Calhoun soil is in capability subclass IVw. The woodland ordination symbol is 9W.

CC—Calhoun and Cascilla silt loams, frequently flooded

These soils are on flood plains. The Calhoun soil is nearly level and poorly drained, and the Cascilla soil is nearly level to gently sloping and well drained. These soils are subject to frequent flooding for brief periods. The Calhoun soil is on broad flats, and the Cascilla soil is on low ridges adjacent to streams. The areas of these soils typically are long and narrow and range to several thousand acres. They are about 50 percent Calhoun soil and about 35 percent Cascilla soil. Each of these soils can be mapped separately, but because frequent flooding limits the use and management of these soils, they were not separated in mapping. Most mapped areas contain both soils, but some areas contain only one. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soils. Slopes range from 0 to 2 percent.

Typically, the Calhoun soil has a surface layer of dark grayish brown silt loam about 3 inches thick. The subsurface layer to a depth of about 26 inches is grayish brown, mottled silt loam. The subsoil to a depth of about 60 inches is gray, mottled silt loam and silty clay loam.

This Calhoun soil has medium fertility and moderately high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from the soil surface to 1.5 feet below the soil surface during December through April. The available water capacity is high or very high. The shrink-swell potential is moderate.

Typically, the Cascilla soil has a surface layer of brown silt loam about 6 inches thick. The subsoil to a depth of about 60 inches is dark yellowish brown silt loam in the upper part; yellowish brown silt loam in the middle part; and yellowish brown, mottled silt loam in the lower part.

This Cascilla soil has medium fertility and high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. A seasonal high water table is below a depth of about 6 feet throughout the year. The available water capacity is high. This shrink-swell potential is low.

Included with the Calhoun and Cascilla soils in mapping are a few small areas of Deerford and Olivier soils. These soils are at a higher elevation than the Calhoun and Cascilla soils. Deerford soils have high levels of sodium in the lower part of the subsoil. Olivier soils have a fragipan. The included soils make up about 15 percent of the map unit.

The Calhoun and Cascilla soils are used mainly as woodland. A small acreage is used as pastureland.

These soils are moderately well suited to use as woodland. The potential for the production of hardwood trees is moderately high. These soils generally are not suited to grow pine trees. The main concerns in producing and harvesting timber are a moderate or severe equipment use limitation and moderate seedling mortality caused by wetness and flooding. Only trees that can tolerate seasonal wetness should be planted. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Conventional methods of harvesting timber generally can be used except during rainy periods and periods of flooding, generally from December to May. Logging should be done during the drier periods to reduce soil compaction and rutting.

These soils are poorly suited to pasture because of the hazard of flooding. Wetness is a limitation in areas of the Calhoun soil. The main suitable pasture plants are common bermudagrass and bahiagrass. Singletary peas, white clover, tall fescue, and vetch have a moderate tolerance to flooding and can be grown in some places. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. It generally is not feasible to apply large amounts of fertilizer and lime because of frequent flooding. During flood periods, cattle can be moved to adjacent protected areas or to pastures at a higher elevation.

These soils are not suited to cultivated crops, urban uses, and intensive recreational uses. The hazard of flooding is too severe for these uses.

The Calhoun soil in this map unit is well suited to use as habitat for wetland wildlife and moderately well suited to use as habitat for woodland wildlife. The Cascilla soil in this map unit is well suited to use as habitat for woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Habitat for waterfowl can be improved by constructing shallow ponds.

These soils are in capability subclass Vw. The woodland ordination symbol is 8W for the Calhoun soil and 14W for the Cascilla soil.

Ce—Commerce silt loam

This nearly level, somewhat poorly drained soil is in high and intermediate positions on the natural levee of the Mississippi River and its distributaries. It is protected from flooding by levees. The mapped areas of this soil range from about 10 to several hundred acres. Slopes range from 0 to 1 percent.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsoil to a depth of about 31 inches is grayish brown, mottled silt loam. The substratum to a depth of about 60 inches is grayish brown, mottled silty clay loam. In places, the surface layer is silty clay loam.

This soil has high fertility. Water and air move through this soil at a moderately slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from about 1.5 to 4 feet below the soil surface during December through April. The available water capacity is high or very high. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Convent and Sharkey soils. Convent soils are in slightly higher positions than the Commerce soil and have less clay in the subsoil. Sharkey soils are in lower positions than the Commerce soil and are clayey throughout the profile. The included soils make up about 10 percent of the map unit.

This soil is used mainly as cropland or pastureland. In a few areas, it is used as woodland.

This soil is well suited to use as woodland, mainly hardwood trees. The main concern in producing and harvesting timber is a restricted use of equipment unless drainage is provided. Reforestation can be carefully managed to reduce competition from undesirable understory plants.

This soil is well suited to pasture. It is limited mainly by wetness. The main suitable pasture plants are improved bermudagrass, common bermudagrass, bahiagrass, ryegrass, wild winter peas, and white clover. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Grasses respond well to nitrogen fertilizer.

This soil is well suited to cultivated crops. It is limited mainly by wetness. The main suitable crops are cotton, corn, soybeans, wheat, and truck crops. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth. Proper row arrangement, field ditches, and vegetated outlets help to remove excess surface water. Land grading and smoothing improve surface drainage and permit more efficient use of farm equipment. Crops respond well to nitrogen fertilizer.

This soil is moderately well suited to urban development. The main limitations are wetness, moderate shrink-swell potential, moderately slow permeability, and low strength for roads. Excess water can be removed by shallow ditches and by providing the proper grade. Buildings and roads should be designed to offset the effects of shrinking and swelling. Roads should be designed to offset the limited ability of the soil to support a load. Moderately slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. If housing density is moderate to high, a community sewage system is needed to prevent contamination of ground-water sources.

This soil is moderately well suited to intensive recreational uses. The main limitations are wetness and moderately slow permeability. Good drainage can improve this soil for most recreational uses.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants.

This Commerce soil is in capability subclass IIw. The woodland ordination symbol is 13W.

CM—Commerce soils, gently undulating, occasionally flooded

These gently undulating, somewhat poorly drained soils are in intermediate and high positions on natural levees of the Mississippi River. These soils are subject to occasional flooding for brief to long periods. These soils are on ridges and in swales. The ridges are 100 to 300 feet wide and make up about 70 percent of the area. The swales are 25 to 100 feet wide and make up about 30 percent of the area. These soils are not in a regular pattern on the landscape. Individual areas are large enough to have been mapped separately, but because of present and predicted use of the soils, they were not separated in mapping. Slopes range from 0 to 3 percent. In places, these soils have slopes of more than 3 percent.

Typically, the surface layer is dark grayish brown silt loam or silty clay loam about 8 inches thick. The subsoil to a depth of about 24 inches is grayish brown, mottled silty clay loam in the upper part and grayish brown, mottled silt loam in the lower part. The substratum to a depth of about 60 inches is grayish brown, mottled silty clay loam in the upper part and gray, mottled silty clay loam in the lower part.

These Commerce soils have high fertility. Water and air move through these soils at a moderately slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from about 1.5 to 4 feet below the soil surface during December through April. The available water capacity is high or very high. The shrink-swell potential is moderate.

Included with these Commerce soils in mapping are many medium and large areas of Convent and Sharkey soils. Convent soils are in slightly higher positions than these Commerce soils and contain less clay in the subsoil. Sharkey soils are in lower positions than these Commerce soils and are clayey throughout the profile. The included soils make up about 15 percent of the map unit.

These soils are used mainly as woodland. A small acreage is used as pastureland or cropland.

These soils are well suited to use as woodland, mainly hardwood trees. The main concern in producing and harvesting timber is an equipment use limitation caused by wetness from flooding. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants.

These soils are moderately well suited to pasture. Wetness from flooding and a seasonal high water table are the main limitations. The main suitable pasture plants are common bermudagrass and bahiagrass. Grazing when the soil is wet compacts the surface layer and damages plants. During flood periods, cattle can be moved to adjacent protected areas or to pastures at a higher elevation. Pasture plants respond well to nitrogen fertilizer, and lime or other fertilizers generally are not needed.

These soils are moderately well suited to cultivated crops, mainly soybeans. Wetness is the main limitation, and flooding in late spring or summer can damage crops in some years. The surface layer of these soils is friable and easy to keep in good tilth. These soils can be worked throughout a wide range of moisture content. Traffic pans develop easily, but they can be broken by deep plowing or chiseling. Conservation tillage and returning crop residue to the soil improve fertility and help to maintain tilth and content of organic matter. Field ditches and suitable outlets help to remove excess surface water.

These soils are poorly suited to urban and intensive recreational uses. They generally are not suited to use as homesites because of the hazard of flooding. Wetness, moderately slow permeability, moderate shrink-swell potential, and low strength for roads and streets are the main limitations.

These Commerce soils are in capability subclass IIIw. The woodland ordination symbol is 13W.

CN—Commerce soils, gently undulating, frequently flooded

These gently undulating, somewhat poorly drained soils are on the lower reaches of the deltaic fans of distributaries of the Mississippi River. These soils are subject to frequent flooding for brief to long periods, mainly in winter and spring; however, flooding can occur during any season. These soils are on ridges and in swales. The mapped areas of these soils range from about 10 to 1,000 acres. Individual areas are large enough to have been mapped separately, but because frequent flooding limits the use and management of the soils, they were not separated in mapping. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soils. Slopes range from 0 to 3 percent.

Typically, the surface layer is dark grayish brown silt loam or silty clay loam about 4 inches thick. The subsoil to a depth of about 44 inches is gray and grayish brown, mottled silt loam. The substratum to a depth of about 60 inches is gray, mottled silty clay loam. In places, the surface layer is silty clay.

These Commerce soils are high in fertility. Water and air move through these soils at a moderately slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from about 1.5 to 4 feet below the soil surface during December through April. The available water capacity is high or very high. The shrink-swell potential is moderate.

Included with these Commerce soils in mapping are a few small areas of Fausse, Sharkey, and Tunica soils. These soils are in lower positions than these Commerce soils and have a clayey surface layer and subsoil. The included soils make up about 10 percent of the map unit.

These soils are used mainly as woodland and habitat for wildlife. In a few areas, they are used as cropland.

These soils are moderately well suited to use as woodland. The potential for the production of hardwood trees is high. The main concerns in producing and harvesting timber are the hazard of flooding and severe seedling mortality and equipment use limitation caused by wetness. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. If site preparation is not adequate, competition from undesirable plants can prevent or prolong natural or artificial reestablishment of trees. Trees should be water-tolerant, and they should be planted or harvested during dry periods. Conventional methods of harvesting timber generally can be used except during rainy periods, generally from November to April.

These soils are poorly suited to pasture. The main limitation is wetness, and flooding is a hazard. Wetness limits the choice of plants and the period of grazing. Grazing when the soils are wet results in puddling of the surface layer. Excess water on the surface can be removed by levees, ditches, pumps, and suitable outlets. The main suitable pasture plants are common bermudagrass and ryegrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soils in good condition. During flood periods, cattle can be moved to protected areas or to pastures at a higher elevation.

These soils are not suited to cultivated crops. The hazard of flooding is too severe for this use. If good water control is maintained with a system of dikes, ditches, and water pumps, these soils are suited to most climatically adapted crops. Land grading and smoothing improve surface drainage and permit more efficient use of farm equipment. Returning crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth.

These soils are not suited to urban development, mainly because of the hazard of frequent flooding. Wetness, moderately slow permeability, moderate shrink-swell potential, and low strength for roads are additional soil limitations. Major flood-control structures and extensive local drainage systems are needed to protect the soils from flooding. If these soils are developed for commercial uses, sufficient fill material is needed to raise the surface elevation above normal flood levels.

These soils are not suited to recreational uses because of the hazard of frequent flooding. Wetness and moderately slow permeability are additional limitations. Good drainage can improve these soils for most recreational uses. Protection from flooding is possible, but only by major flood-control structures, such as levees and water pumps.

These soils are well suited to use as habitat for woodland wildlife and moderately well suited to use as habitat for openland and wetland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Shallow ponds can be constructed to provide open water areas for waterfowl and furbearers.

These Commerce soils are in capability subclass Vw. The woodland ordination symbol is 12W.

Co—Convent silt loam

This level, somewhat poorly drained soil is in high positions on the natural levees of the Mississippi River and its distributaries. The areas of this soil are long and narrow and range from 10 to more than 1,000 acres. Slopes are less than 1 percent.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The next layer to a depth of about 9 inches is brown very fine sandy loam. The underlying material to a depth of about 60 inches is grayish brown very fine sandy loam in the upper part; grayish brown, mottled silt loam in the middle part; and dark grayish brown silt loam in the lower part.

This soil has high fertility. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from about 1.5 to 4 feet below the soil surface during December through April. Flooding from streams is controlled in most places by levees of the West Atchafalaya Floodway. The available water capacity is very high. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Commerce and Sharkey soils. Commerce soils are in slightly lower positions than the Convent soil and contain more clay in the subsoil. Sharkey soils are in lower positions than the Convent soil and are clayey throughout the profile. The included soils make up about 10 percent of the map unit.

This soil is used mainly as cropland and pastureland. A small acreage is used as homesites.

This soil is well suited to use as woodland; however, only a few areas remain in native hardwoods. Wetness limits the use of equipment. Proper site preparation and spraying, cutting, or girdling can eliminate unwanted weeds, brush, or trees.

This soil is well suited to pasture. It has few limitations for this use. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, dallisgrass, ryegrass, tall fescue, and white clover. Excess surface water can be removed by shallow drains. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Nitrogen fertilizer is needed for sustained production of high quality pasture.

This soil is well suited to cultivated crops. It is limited mainly by wetness. The main suitable crops are soybeans, cotton, corn, and vegetables. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Proper row arrangement, field ditches, and vegetated outlets help to remove excess surface water. Traffic pans develop easily, but they can be broken by deep plowing or chiseling. The organic matter content can be maintained by using all crop residue, plowing under cover crops, and using a suitable cropping system. Returning crop residue to the soil and using conservation tillage reduces crusting of the surface layer and compaction of the soil.

This soil is moderately well suited to urban development. It is limited mainly by wetness. It has moderate limitations for dwellings, small commercial buildings, and local roads and streets and severe limitations for most sanitary facilities. Good drainage can improve this soil for roads and buildings. Excess water can be removed by shallow drains and proper grading. Unless internal drainage is improved, septic tank absorption fields do not function properly during rainy periods. Lagoons or self-contained disposal units can be used to dispose of sewage properly.

This soil is moderately well suited to recreational uses, mainly because of wetness. Good drainage can improve this soil for most recreational uses. Excess water can be removed by shallow ditches or by providing the proper grade.

This Convent soil is in capability subclass IIw. The woodland ordination symbol is 13W.

CR—Crevasse loamy sand, frequently flooded

This nearly level to moderately sloping, excessively drained soil is on low natural levees adjacent to the Mississippi River. It is subject to flooding, scouring, and deposition. The areas of this soil generally are long and narrow and range from 50 to 200 acres. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soil. Slopes generally are short, but in places they are long and smooth. Slopes range from 0 to 5 percent. In places, this soil has slopes that range from 5 to 8 percent.

Typically, the surface layer is brown loamy sand about 6 inches thick. The underlying material to a depth of about 60 inches is brown and yellowish brown loamy sand.

This soil has low fertility. Water and air move through this soil at a rapid rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from about 3.5 to 6 feet below the soil surface from November to March of most years. Flooding occurs for brief periods during any time of the year, but more commonly in late winter, in spring, and in early summer of most years. Floodwater typically is 5 to 10 feet deep. The available water capacity is very low or low. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Robinsonville soils. These soils are in higher positions than the Crevasse soil and contain more clay in the subsoil. The included soils make up about 15 percent of the map unit.

Most of the acreage of this soil is used as woodland.

This soil is poorly suited to use as woodland. The potential for the production of timber is moderately high, but tree stands are difficult to establish because of droughtiness in summer and deep, fast-flowing floodwater. Trees are often uprooted by floodwater or buried by sediment. The use of equipment is restricted by wetness from flooding and by the sandy surface layer, which provides poor traction when it is dry.

This soil is not suited to cultivated crops, mainly because of frequent flooding and droughtiness. Crop residue left on or near the surface helps conserve moisture and maintain tilth. Scouring and deposition during flood periods can damage drainage and irrigation structures. Generally, it is not practical to control flooding.

This soil is poorly suited to pasture, mainly because of frequent flooding and droughtiness. The main suitable pasture plant is common bermudagrass.

This soil is poorly suited to use as habitat for woodland and openland wildlife. Habitat for woodland wildlife can be improved by propagating the natural growth of oak trees and suitable understory plants.

This soil is not suited to urban and recreational uses, mainly because of the hazard of frequent, fast-flowing floodwater. Generally, it is not practical to control flooding.

This Crevasse soil is in capability subclass Vw. The woodland ordination symbol is 7W.

De—Deerford silt loam, 0 to 2 percent slopes

This nearly level to gently sloping, somewhat poorly drained soil is on slightly convex ridges on terraces. It is subject to rare flooding. The areas of this soil are irregular in shape and range from 10 to 150 acres.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsurface layer to a depth of about 10 inches is light brownish gray, mottled silt loam. The next layer to a depth of about 16 inches is yellowish brown, mottled silty clay loam and light brownish gray silt loam. The upper part of the subsoil to a depth of about 24 inches is light olive brown, mottled silty clay loam. To a depth of about 34 inches, it is light olive brown silt loam. The lower part of the subsoil to a depth of about 60 inches is yellowish brown silt loam.

This soil has medium fertility. After a heavy rainfall, the surface layer of this soil remains wet for long periods. Water and air move through this soil at a slow rate. Water runs off the surface at a slow rate. Flooding is rare, but can occur during unusually wet periods. From December to April, water is perched on a restrictive layer at a depth of about 0.5 foot to 1.5 feet below the soil surface. The concentration of sodium salts in the middle and lower parts of the subsoil limits the effective rooting depth and the availability of water. The available water capacity is moderate or high. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Calhoun, Loring, and Olivier soils. Calhoun soils are in depressional areas or along drainageways and are gray throughout the profile. Loring soils are in higher positions on the landscape than the Deerford soil and have a fragipan. Olivier soils are in landscape positions similar to those of the Deerford soil and have a fragipan. The included soils make up 10 percent of the map unit.

This soil is used mainly as cropland. A small acreage is used as pastureland or homesites.

This soil is moderately well suited to use as woodland. The potential for the production of hardwood and pine trees is moderately high. The main concerns in producing and harvesting timber are severe plant competition and moderate seedling mortality and equipment use limitation caused by wetness and the concentration of sodium in the middle and lower parts of the subsoil. Conventional methods of harvesting timber generally are suitable, but the soil may be compacted when it is wet and heavy equipment is used. Site preparation controls initial plant competition, and spraying controls subsequent growth.

This soil is moderately well suited to pasture. Wetness and high levels of sodium limit the choice of plants and the period of grazing. The main suitable pasture plants are common bermudagrass, improved bermudagrass, ryegrass, and tall fescue. Excess water on the surface can be removed by surface field ditches. Fertilizer and lime are needed for grasses and legumes.

This soil is moderately well suited to cultivated crops, mainly cotton and soybeans. The main limitations are wetness and excess sodium in the subsoil. A tillage pan forms easily if this soil is tilled when wet, but it can be broken by chiseling or subsoiling. Proper row arrangement, surface field ditches, and grassed waterways help to remove excess surface water. Land smoothing improves surface drainage and permits efficient use of farm equipment. Deep cuts during land grading for smoothing should not expose the subsoil, which has a high sodium content. Crop residue left on the surface reduces runoff, helps to maintain the organic matter content, and improves soil tilth. Crops respond well to lime and fertilizer.

This soil is poorly suited to urban development. The main limitations are wetness, excess sodium, and slow permeability. Flooding is a hazard. Low strength is a limitation for local roads and streets. Excess water can be removed by shallow ditches or by providing the proper grade. Deep cuts that expose the subsoil can be difficult to revegetate because of the high levels of sodium in the subsoil. Septic tank absorption fields do not function properly during rainy periods because of wetness and slow permeability. Where flooding is controlled, lagoons or self-contained disposal units can be used to dispose of sewage properly.

This soil is poorly suited to recreational uses. The main limitations are wetness and excess sodium. Flooding is a hazard. Good drainage improves this soil for intensively used recreation areas, such as playgrounds. Plant cover can be maintained by fertilizing and by controlling traffic.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants.

This Deerford soil is in capability subclass IIIw. The woodland ordination symbol is 10W.

Dx—Dexter silt loam, 1 to 3 percent slopes

This gently sloping, well drained soil is on convex ridges on stream terraces. The areas of this soil range from about 10 to 100 acres.

Typically, the surface layer is brown silt loam about 5 inches thick. The next layer is dark yellowish brown silt loam about 4 inches thick. The subsoil extends to a depth of about 67 inches. From top to bottom, it is strong brown silty clay loam; reddish brown silty clay loam; strong brown, mottled loam; dark brown, mottled sandy loam; brown sandy loam; and strong brown, mottled sandy loam. The substratum to a depth of about 80 inches is strong brown, mottled loamy sand.

This soil has low fertility and moderately high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a medium rate. A seasonal high water table is at a depth of more than 6 feet throughout the year. Roots penetrate this soil easily. The available water capacity is moderate or high. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Calhoun, Fluker, Kenefick, and Olivier soils. Calhoun soils are in depressional areas and on flood plains. They are poorly drained and are gray throughout the profile. Fluker and Olivier soils are in lower positions than the Dexter soil and have a fragipan. Kenefick soils are in landscape positions similar to those of the Dexter soil and contain more sand in the subsoil. The included soils make up about 10 percent of the map unit.

This soil is used mainly as pastureland. A small acreage is used as cropland, woodland, or homesites. In places, sand and gravel are mined from this soil to use as construction materials.

This soil is well suited to use as woodland. It has few limitations for use and management. The potential for the production of both pine and hardwood trees is high. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Conventional methods of harvesting timber generally can be used throughout the year.

This soil is well suited to pasture. The main limitation is low fertility, and erosion is a hazard. The main suitable pasture plants are common bermudagrass, improved bermudagrass, and bahiagrass. Seedbed preparation should be on the contour or across the slope where practical to reduce erosion. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to cultivated crops. The main limitations are steepness of slope, low fertility, and potentially toxic levels of exchangeable aluminum in the root zone. The main suitable crops are corn, millet, grain sorghum, and truck crops. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth. Contour farming and stripcropping can help to control erosion. Most crops respond well to lime and fertilizer, which help to improve fertility and reduce the levels of exchangeable aluminum.

This soil is moderately well suited to urban development. It has few limitations for use as sites for dwellings. It has moderate or severe limitations for local roads and streets and most sanitary facilities. Mulching, fertilizing, and irrigating help to establish lawn grasses and other small-seeded plants. Seepage is a severe problem where this soil is used for sewage lagoons or sanitary facilities. In places, sand and gravel can be obtained from areas of this soil, but excess fines are a common problem. Where shallow excavations are constructed, special supports for the walls can be installed to prevent cave-in.

This soil is well suited to recreational uses. It has few limitations for these uses. Steepness of slope is a moderate limitation for playgrounds. Plant cover can be maintained by fertilizing, irrigating, and controlling traffic.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. In pine forests, prescribed burning can increase the amount of palatable browse for deer and seed-producing plants for quail and turkey.

This Dexter soil is in capability subclass IIe. The woodland ordination symbol is 12A.

FA—Fausse clay

This level, very poorly drained, very slowly permeable soil is in backswamp areas. It is ponded most of the time and frequently flooded. Flooding occurs for very long periods in most years from January to December. The mapped areas of this soil range from 200 to 2,000 acres. Fewer observations were made than in most map units because of poor accessibility. The detail in mapping, however, is adequate for the expected use of the soil. Slopes dominantly are less than 1 percent.

Typically, the surface layer is very dark gray clay about 5 inches thick. The subsoil to a depth of about 32 inches is dark gray clay in the upper part and gray clay in the lower part. The substratum to a depth of about 60 inches is gray, mottled clay in the upper part and greenish gray clay in the lower part.

This soil is high in natural fertility. Depth of floodwater ranges from 1 foot to 3 feet. During non-flood periods, the water table ranges from about 1.5 feet below the soil surface to 1 foot above the surface. This soil is seldom dry enough to crack. Permeability is very slow. The available water capacity is high or very high. The shrink-swell potential is very high.

Included with this soil in mapping are a few large areas of Sharkey and Tunica soils. These soils are in higher positions than the Fausse soil. They are dry enough in most years to crack to a depth of 20 inches or more. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland, habitat for wetland and woodland wildlife, and intensive recreation areas for sports, such as hunting.

This soil is poorly suited to use as woodland. Wetness and the hazard of flooding are the main limitations. Unless this soil is drained and protected from flooding, equipment use limitation and seedling mortality are severe. Timber can be harvested only with special equipment. The natural vegetation consists mainly of baldcypress, black willow, water tupelo, water hickory, overcup oak, and red maple. The main understory and aquatic vegetation consists of buttonbush, palmetto, maidencane, lizard tail, duckweed, and swamp-privet.

Unless drained and protected from flooding, this soil is not suited to use as cropland and pastureland.

This soil is not suited to urban and intensive recreational uses. Ponding, very slow permeability, low strength for roads, very high shrink-swell potential, and the hazard of flooding are the main limitations. If this soil is drained and protected from flooding, it can be used for local roads and streets and for dwellings without basements. However, roads and foundations need to be specially designed to overcome the limitations of very high shrink-swell potential and low strength.

This soil is well suited to use as habitat for wetland wildlife. When flooded, this soil provides feeding and roosting areas for ducks and other waterfowl. It also provides habitat for deer, squirrel, mink, alligators, muskrats, and raccoons; and it is the main habitat for deepwater crawfish. Wetland habitat can be improved by installing structures for controlling water levels. Timber management that propagates oak and other mast-producing trees improves habitat for wood ducks, squirrel, deer, and nongame birds.

This Fausse soil is in capability subclass VIIw. The woodland ordination symbol is 6W.

Fb—Feliciana silt loam, 0 to 1 percent slopes

This level, well drained soil is on broad, convex ridgetops on uplands. The areas of this soil range from 20 to 200 acres.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsoil extends to a depth of about 65 inches. From top to bottom, it is dark yellowish brown silt loam, dark brown silty clay loam, dark yellowish brown silt loam, and yellowish brown silt loam.

This soil has medium fertility and moderately high or high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a medium rate. A seasonal high water table is at a depth of more than 6 feet below the surface. The available water capacity is high or very high. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Calhoun, Loring, and Olivier soils. Calhoun soils are in slightly depressional areas and along drainageways. They are poorly drained and gray throughout the profile. Loring and Olivier soils have less convex slopes than the Feliciana soil. Loring and Olivier soils have a fragipan. The included soils make up about 10 percent of the map unit.

This soil is used mainly as pastureland and cropland. In a few areas, it is used as homesites.

This soil is well suited to use as woodland. It has few limitations for use and management. The potential for the production of pine and hardwood trees is high.

This soil is well suited to pasture. It is limited mainly by low fertility. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ball clover, and ryegrass. Proper stocking and pasture rotation help to keep the pasture in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to cultivated crops. The main limitations are low fertility and moderately high or high levels of exchangeable aluminum in the root zone. Soybean is the main crop; but corn, cotton, and sweet potatoes are also suitable crops (fig. 4). This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Plow pans develop easily, but they can be broken by deep plowing or chiseling. The organic matter content can be maintained by using all

Figure 4.—Soybean is a major crop grown on Feliciana silt loam, 0 to 1 percent slopes.

crop residue, plowing under cover crops, and using a suitable cropping system. Most crops respond well to fertilizer and lime, which help to improve fertility and reduce the levels of exchangeable aluminum.

This soil is well suited to urban development. Septic tank absorption fields may not function properly during rainy periods because of the moderate permeability, but this limitation can be easily overcome by increasing the size of the absorption field. Streets and roads should be designed to offset the limited ability of the soil to support a load.

This soil is well suited to recreational uses. It has few limitations for these uses.

This soil is well suited to use as habitat for deer, dove, quail, rabbit, and nongame birds and animals. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants.

This Feliciana soil is in capability class I. The woodland ordination symbol is 12A.

Fe—Feliciana silt loam, 1 to 3 percent slopes

This very gently sloping, well drained soil is on side slopes and on convex ridgetops on uplands. The areas of this soil range from about 20 to 200 acres.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsoil to a depth of about 60 inches is dark brown silty clay loam and silt loam in the upper part, dark yellowish brown silt loam in the middle part, and yellowish brown silt loam in the lower part.

This soil has medium fertility and moderately high or high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a medium rate. A seasonal high water table is at a depth of more than 6 feet below the surface. The available water capacity is high or very high. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Loring and Olivier soils. These soils have less convex slopes than the Feliciana soil and have a fragipan. The included soils make up about 15 percent of the map unit.

This soil is used mainly as cropland or pastureland. In a few areas, it is used as homesites.

This soil is well suited to use as woodland. It has few limitations for producing and harvesting timber. The potential for the production of pine and hardwood trees is high.

This soil is well suited to pasture. It has few limitations for use and management. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, and ball clover. Erosion can be controlled by maintaining a good plant cover. Also, seedbed preparation should be on the contour or across the slope where practical. Proper stocking and pasture rotation help to keep the pasture in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are the moderate hazard of erosion, low fertility, and potentially toxic levels of exchangeable aluminum in the root zone. Soybean is the main crop; but corn, cotton, and sweet potatoes are also suitable crops. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Plow pans develop easily, but they can be broken by deep plowing or chiseling. Crop residue left on or near the surface reduces runoff and helps to maintain soil tilth and organic matter content. Conservation practices, such as conservation tillage, terraces, diversions, and grassed waterways help to control erosion. Drop structures can be installed in grassed waterways to control gullying. Most crops respond well to fertilizer and lime, which help to improve fertility and reduce the levels of exchangeable aluminum.

This soil is well suited to urban development. Septic tank absorption fields may not function properly during rainy periods because of the moderate permeability, but this limitation can be easily overcome by increasing the size of the absorption field. The hazard of erosion is increased if the soil is left exposed during site development. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. Mulching, fertilizing, and irrigating help to establish lawn grasses and other small-seeded plants. Streets and roads should be designed to offset the limited ability of the soil to support a load.

This soil is well suited to recreational uses. However, erosion can be a hazard for playgrounds where ground cover is absent. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. The cover can be maintained by fertilizing and by controlling traffic. Cuts and fills should be seeded or mulched.

This soil is well suited to use as habitat for deer, dove, quail, rabbit, and numerous nongame birds and animals. Habitat for wildlife can be improved by maintaining existing plant cover or by propagating desirable plants. Habitat is improved if grain is left for food patches in odd areas near good wildlife cover and crop residue is left on the soil surface over winter.

This Feliciana soil is in capability subclass IIe. The woodland ordination symbol is 12A.

Fg—Feliciana silt loam, 3 to 8 percent slopes

This moderately sloping or strongly sloping, well drained soil is on side slopes and on narrow, convex ridgetops on uplands. The areas of this soil range from about 20 to several hundred acres.

Typically, the surface layer is brown silt loam about 4 inches thick. The subsoil to a depth of about 60 inches is dark yellowish brown silt loam in the upper part and yellowish brown silt loam in the lower part. In places, the soil is eroded and most of the surface layer has been removed.

This soil has medium fertility and moderately high or high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a rapid rate. A seasonal high water table is at a depth of more than 6 feet below the surface. The available water capacity is high or very high. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Loring soils. These soils are on upper side slopes and have a fragipan in the subsoil. The included soils make up about 10 percent of the map unit.

This soil is used mainly as pastureland or cropland. In a few areas, it is used as homesites or woodland.

This soil is well suited to use as woodland. It has few limitations for use and management. The potential for the production of pine and hardwood trees is high.

This soil is well suited to pasture. It is limited mainly by low fertility. Erosion is a hazard when the soil is tilled and until pasture plants become established. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, and ball clover. Erosion can be controlled by maintaining a good plant cover. Also, seedbed preparation should be on the contour or across the slope where practical. Proper stocking and pasture rotation help to keep the pasture in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are steepness of slope, low fertility, and potentially toxic levels of exchangeable aluminum in the root zone. Erosion is a severe hazard. Soybean is the main crop; but sweet potatoes, cotton, and corn are also suitable crops. In places, irregular slopes hinder tillage operations. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Plow pans develop easily, but they can be broken by deep plowing. Limiting tillage for seedbed preparation and weed control reduces runoff and erosion. Gradient terraces and contour farming reduce the risk of sheet and rill erosion on the steeper slopes (fig. 5). Diversions and grassed waterways also help to control erosion. Drop structures can be installed in grassed waterways to control gullying. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion. Most crops respond well to fertilizer and lime, which help to improve soil fertility and reduce the levels of exchangeable aluminum.

This soil is moderately well suited to urban development. The hazard of erosion is increased if the soil is left exposed during site development. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. Establishing and maintaining plant cover can be achieved through proper fertilizing, seeding, mulching, and shaping of the slopes. During the rainy season, effluent from onsite sewage disposal systems can seep at points downslope. This problem can be overcome by installing absorption lines on the contour. Self-contained disposal units can be used to dispose of sewage properly. Streets and roads should be designed to offset the limited ability of the soil to support a load.

This soil is moderately well suited to recreational uses. Erosion can be a hazard where ground cover is absent. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining an adequate plant cover. The cover can be maintained by fertilizing and by controlling traffic. Cuts and fills should be seeded or mulched.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for woodland wildlife can be improved by selectively harvesting timber to leave large den and mast-producing trees. Habitat for openland wildlife can be improved by planting crops in narrow strips and using a diversity of crops in rotation.

This Feliciana soil is in capability subclass IIIe. The woodland ordination symbol is 12A.

FH—Feliciana and Natchez silt loams, steep

These strongly sloping to very steep, well drained soils are on side slopes along deeply entrenched drainageways on uplands and on the escarpment between uplands and the alluvial plain. In places, gullies cross the mapped areas. The Feliciana soil is on the upper side slopes, and the Natchez soil is on the steeper mid and lower slopes. The areas of these soils range from about 50 to several hundred acres. They are about 60 percent Feliciana soil and about 30 percent Natchez soil. Each of these soils can be mapped separately, but because steepness of slope limits the use and management of these soils, they were not separated in mapping. Most mapped areas contain both soils, but some areas contain only one. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soils. The

Figure 5.—Planting soybeans on the contour helps to reduce erosion in this area of Feliciana silt loam, 3 to 8 percent slopes.

Feliciana soil has slopes that range from 8 to 40 percent, and the Natchez soil has slopes that range from 12 to 60 percent.

Typically, the Feliciana soil has a surface layer of brown silt loam about 2 inches thick. The subsoil to a depth of about 60 inches is dark yellowish brown silt loam and silty clay loam. In places, erosion has removed the surface layer.

This Feliciana soil has medium fertility and high or moderately high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Runoff is rapid, and the hazard of erosion is severe. A seasonal high water table is at a depth of more than 6 feet below the surface. The available water capacity is high or very high. The shrink-swell potential is low.

Typically, the Natchez soil has a surface layer of dark grayish brown silt loam about 2 inches thick. The subsurface layer is yellowish brown silt loam about 3 inches thick. The subsoil and substratum to a depth of about 60 inches are yellowish brown silt loam. In places, erosion has removed the surface layer.

This Natchez soil has medium fertility. Water and air move through this soil at a moderate rate. Runoff is rapid, and the hazard of water erosion is severe. A seasonal high water table is at a depth of more than 6 feet below the surface. The available water capacity is high or very high. The shrink-swell potential is low.

Included with the Feliciana and Natchez soils in mapping are a few small areas of Loring soils. These soils are on upper side slopes and have a fragipan in the subsoil. Also included on some of the footslopes are small outcrops of clayey or sandy soil materials. The included soils make up about 10 percent of the map unit.

The Feliciana and Natchez soils are used mainly as woodland. A small acreage is used as pastureland.

These soils are moderately well suited to use as woodland. The potential for the production of pine and hardwood trees is high or very high. Steep slopes, gullies, and the moderate hazard of erosion restrict the use of equipment and limit planting and harvesting operations. Management that minimizes the risk of erosion is essential in harvesting timber. Planting of trees on the contour helps to control erosion. Additional protective cover can be provided by interplanting with a cover crop. Roads and landings can be protected from erosion by constructing diversions and by seeding cuts and fills.

These soils are poorly suited to pasture. Steep slopes and gullies restrict the use of farm equipment. The hazard of erosion is severe. The main suitable pasture plants are common bermudagrass, improved bermudagrass, crimson clover, bahiagrass, and ball clover. All adapted pasture plants can be grown, but bunch-type species planted alone generally are not suitable because of the hazard of erosion. Seedbed preparation should be on the contour or across the slope where practical. Fertilizer and lime are needed for optimum growth of grasses and legumes.

These soils are not suited to cultivated crops. Slopes are generally too steep and the hazard of erosion is too severe for use as cropland.

This map unit is poorly suited to urban development. The main limitations are steepness of slope, low strength for roads and streets, and the severe hazard of erosion. Preserving the existing plant cover during construction helps to control erosion. Establishing and maintaining plant cover can be achieved through proper fertilizing, seeding, mulching, and shaping of the slopes. Where the slope is steep, installing septic tank absorption fields is difficult. Sewage effluent can seep at points downslope. Self-contained disposal units can be used to dispose of sewage properly. Erosion can be reduced if access roads are designed to provide adequate cut-slope grade and conservation practices, such as diversions, terraces, and grassed waterways, are used to control surface runoff. Topsoil can be stockpiled and used to reclaim areas disturbed by cutting and filling. Streets and roads should be designed to offset the limited ability of the soil to support a load.

These soils are poorly suited to recreational uses. Steepness of slope limits the use of these soils mainly to a few paths and trails, which should extend across the slope. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. The cover can be maintained by fertilizing and by controlling traffic. Cuts and fills should be seeded and mulched.

These soils are well suited to use as habitat for woodland wildlife and moderately well suited to use as habitat for openland wildlife. Habitat for wildlife can be improved by selectively harvesting timber to leave large den and mast-producing trees.

These Feliciana and Natchez soils are in capability subclass VIe. The woodland ordination symbol is 12R for the Feliciana soil and 11R for the Natchez soil.

Fk—Fluker silt loam, 0 to 2 percent slopes

This nearly level to gently sloping, somewhat poorly drained soil is on broad flats on terraces. It is subject to rare flooding. Areas of this soil range from about 20 to 300 acres.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The subsoil to a depth of about 25 inches is light yellowish brown, mottled silt loam in the upper part and yellowish brown, mottled silty clay loam in the lower part. To a depth of about 31 inches, it is yellowish brown, mottled silty clay loam and light brownish gray silt loam. Below this, to a depth of about 60 inches, is a fragipan. It is strong brown, mottled loam in the upper part; strong brown and yellowish brown loam in the middle part; and yellowish brown, mottled sandy loam in the lower part.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through the upper part of this soil at a moderate rate and through the fragipan at a slow rate. Water runs off the surface at a slow rate. Flooding is rare, but can occur during unusually wet periods. A water table is perched on the fragipan at a depth of about 0.5 foot to 1.5 feet during December through April. The available water capacity is moderate or high. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Dexter, Guyton, Kenefick, Ochlockonee, Ouachita, and Toula soils. None of these soils, except the Toula soils, has a fragipan. Dexter and Kenefick soils are on convex ridges on terraces. Guyton, Ochlockonee, and Ouachita soils are on flood plains. Toula soils are in higher positions than the Fluker soil and do not have gray mottles within 16 inches of the soil surface. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland or pastureland. A small acreage is used as homesites, recreation areas, or cropland.

This soil is moderately well suited to use as woodland. The potential for the production of pine and hardwood trees is high. The main concerns in producing and harvesting timber are a moderate equipment use limitation caused by wetness and severe competition from understory plants. When the soil is moist, it is subject to rutting and compaction by logging equipment. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Conventional methods of harvesting timber can be used except during rainy periods, generally from December to April.

This soil is well suited to pasture. The main limitations are wetness and low fertility. The main suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, white clover, winter peas, vetch, and ryegrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are low fertility, wetness, and potentially toxic levels of exchangeable aluminum in the root zone. The main suitable crops are vegetables, soybeans, and corn. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Proper row arrangement, field ditches, and suitable outlets are needed to remove excess surface water. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth. Crops respond to lime and fertilizer, which help to improve fertility and reduce the levels of exchangeable aluminum.

This soil is poorly suited to urban development. The main limitations are wetness, flooding, slow permeability, and low strength for roads and streets. Flooding is a hazard. This soil has severe limitations for building sites, local roads and streets, and most sanitary facilities. Excess water can be removed by shallow ditches and by providing the proper grade. Roads should be designed to offset the limited ability of the soil to support a load. Slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. Where flooding is controlled, lagoons or self-contained disposal units can be used to dispose of sewage properly. Drainage is needed for best results with most lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens. Sand can be removed from some areas of these soils, but excess fines can be expected in the sand.

This soil is poorly suited to recreational uses. The main limitation is wetness, and flooding is a hazard. Good drainage can improve this soil for most recreational uses.

This soil is well suited to use as habitat for deer, rabbit, quail, turkey, dove, and numerous nongame birds. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Timber can be selectively harvested to leave large den and mast-producing trees. Prescribed burning every three years and rotated among several small tracts of land can increase the amount of palatable browse for deer and seed-producing plants for quail and turkey.

This Fluker soil is in capability subclass IIw. The woodland ordination symbol is 11W.

Fr—Frost silt loam, ponded

This level, poorly drained soil formed in loess or silty sediments and is in small depressional areas on terraces. It is ponded most of the time and frequently flooded for very long periods. The areas of this soil range from about 2 to 100 acres. Slopes are less than 1 percent.

Typically the surface layer is grayish brown silt loam about 4 inches thick. The subsurface layer to a depth of about 15 inches is dark gray, mottled silt loam. The next layer to a depth of about 21 inches is grayish brown and gray, mottled silt loam. The subsoil to a depth of about 60 inches is gray, mottled silty clay loam and silt loam.

This soil has low fertility. Wetness and ponding cause air and water to move through this soil at a slow rate and restrict the roots of many plants. Most of the time, the soil is ponded by 2 or more feet of water. During dry periods, the water table ranges from the soil surface to 1.5 feet below the surface. The available water capacity is very high. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Calhoun, Loring, and Olivier soils. Calhoun soils are on broad flats, in depressional areas, and on flood plains. They do not have dark gray coatings on faces of peds in the subsoil. Loring and Olivier soils are in higher positions than the Frost soil and have a fragipan. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland. A small acreage is used as pastureland.

This soil is poorly suited to use as woodland, mainly hardwood trees. Unless this soil is drained, equipment use limitation and seedling mortality are severe. Timber can be harvested only with special equipment. The natural vegetation consists mainly of baldcypress, black willow, water tupelo, water hickory, overcup oak, and red maple. The main understory and aquatic vegetation consists of buttonbush, palmetto, maidencane, lizard tail, duckweed, and swamp-privet.

Unless drained, this soil is not suited to cultivated crops and pasture.

This soil is not suited to urban and intensive recreational uses because of the hazards of flooding and ponding. Slow permeability, moderate shrink-swell potential, and low strength for roads are additional limitations. If this soil is drained and protected from flooding, it can be used for local roads and streets and for dwellings without basements. However, roads and foundations need to be specially

Figure 6.—This area of Frost silt loam, ponded, provides habitat for waterfowl and furbearers.

designed to overcome the limitations of moderate shrink-swell potential and low strength.

This soil is well suited to use as habitat for wetland wildlife. When ponded, this soil provides feeding and roosting areas for ducks and other waterfowl (fig. 6). It also provides habitat for deer, squirrel, mink, muskrats, and raccoons. Wetland habitat can be improved by installing structures for controlling water levels. Timber management that propagates oak and other mast-producing trees improves habitat for wood ducks, squirrel, deer, and nongame birds.

This Frost soil is in capability subclass VIIw. The woodland ordination symbol is 3W.

Ke—Kenefick fine sandy loam, 1 to 3 percent slopes

This gently sloping, well drained soil is on convex ridges on low terraces along major drainageways. In some places, the soil is subject to rare flooding. The areas of this soil range from about 5 to 150 acres. In some places, slopes are more than 3 percent.

Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The next layer to a depth of about 8 inches is brown fine sandy loam and yellowish red sandy clay loam. The subsoil to a depth of about 58 inches is yellowish red sandy clay loam in the upper and middle parts and yellowish red sandy loam in the lower part. The substratum to a depth of about 70 inches is stratified light yellowish brown and strong brown loamy fine sand and fine sandy loam. In some places, the subsoil is sandy loam throughout.

This soil has low fertility. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. A seasonal high water table is at a depth of more than 6 feet. Roots penetrate this soil easily. The effective rooting depth is 60 inches or more. The available water capacity is moderate or high. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Fluker and Guyton soils. These soils are in lower positions than the Kenefick soil. Fluker soils have a fragipan in the subsoil. Guyton soils are poorly drained and are gray throughout the profile. In a few places, small sand and gravel pits are included with this soil in mapping. The included soils make up about 10 percent of the map unit.

This soil is used mainly as pastureland or woodland. A small acreage is used as cropland or homesites. In a few places, the underlying sand and gravel are mined and used as construction material for roads or buildings.

This soil is well suited to use as woodland. It has few limitations for use and management. The potential for the production of loblolly pine and slash pine trees is high. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Conventional methods of harvesting timber generally can be used throughout the year.

This soil is well suited to pasture. It is limited mainly by low fertility. Erosion is a hazard when the soil is tilled and until pasture plants become established. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ball clover, crimson clover, and arrowleaf clover. Proper stocking and pasture rotation help to keep the pasture in good condition. Seedbed preparation should be on the contour or across the slope where practical to reduce erosion. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to cultivated crops. The main limitation is low fertility, and erosion is a hazard. The main suitable crops are corn, soybeans, and vegetables. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. In some years, crops suffer from a shortage of moisture during dry periods. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Contour farming and stripcropping can help to control erosion. Most crops respond well to fertilizer and lime. Where water of suitable quality is available, supplemental irrigation can prevent damage to crops during dry periods.

This soil is moderately well suited to urban development and homesites. The main limitations are moderate shrink-swell potential in the subsoil and low strength for roads and streets. Seepage is a problem where this soil is used for sewage lagoons or sanitary landfills. Revegetating disturbed areas around homesites as soon as possible helps to control erosion. Mulching, fertilizing, and irrigating help to establish lawn grasses and other small-seeded plants. Sand and gravel can be obtained from areas of this soil, but excess fines can be a problem. Footings and foundations of buildings can be strengthened to overcome the shrinking and swelling of the subsoil. Roads can be designed to compensate for the low capacity of the soil to support a load.

This soil is well suited to intensive recreational uses. It has few limitations for these uses. Steepness of slope is a moderate limitation for playgrounds. Erosion can be controlled by maintaining adequate plant cover. The cover can be maintained by fertilizing, irrigating, and controlling traffic.

This soil is well suited to use as habitat for rabbit, quail, dove, deer, turkey, and numerous nongame birds. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Timber can be selectively harvested to leave large den and mast-producing trees.

The Kenefick soil is in capability subclass IIe. The woodland ordination symbol is 10A.

LA—Latanier and Moreland soils, undulating, occasionally flooded

These undulating, somewhat poorly drained soils are on natural levees of the Red River. These soils are subject to occasional flooding for brief to long periods. The landscape consists of narrow, convex ridges and concave swales. The Latanier soil is on the ridges, and the Moreland soil is in swales. The areas of these soils range from 50 to 300 acres. They are about 60 percent Latanier soil and about 30 percent Moreland soil. Most areas contain both soils, but some areas contain only one. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soils. Slopes range from less than 1 percent in swales to 5 percent on ridges. In places, the soil has slopes that range from 5 to 8 percent.

Typically, the Latanier soil has a dark brown clay surface layer about 4 inches thick. The subsoil to a depth of 33 inches is dark reddish brown and reddish brown clay. The substratum to a depth of about 60 inches is stratified reddish brown silt loam and very fine sandy loam.

This Latanier soil has high fertility. Water and air move through this soil at a very slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from 1 foot to 3 feet below the soil surface during December through April. Floodwater typically is from 1 to 3 feet deep but as deep as 10 feet in some years. The surface layer is very sticky when wet and very hard when dry. The available water capacity is high. The shrink-swell potential is very high.

Typically, the Moreland soil has a dark reddish brown clay surface layer about 10 inches thick. The subsoil to a depth of about 60 inches is reddish brown clay in the upper and middle parts and dark reddish brown clay in the lower part.

This Moreland soil has high fertility. Water and air move through this soil at a very slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from the soil surface to 1.5 feet below the surface during December through April. Flooding occurs for brief to long periods in winter, spring, and early summer. Floodwater typically is 1 foot to 3 feet deep, but the depth exceeds 10 feet in places. The available water capacity is moderate or high. The shrink-swell potential is very high.

Included with the Latanier and Moreland soils in mapping are a few small areas of Sharkey soils. These soils are in positions similar to those of the Moreland soil and have a gray subsoil. The included soils make up about 10 percent of the map unit.

The entire acreage of Latanier and Moreland soils is used as woodland or cropland.

These soils are moderately well suited to use as woodland, mainly hardwood trees. The main management concerns in producing and harvesting timber are wetness and flooding, which limit the use of equipment and cause a moderate rate of seedling mortality. Because the clayey soil is sticky when wet, most planting and harvesting equipment can be used only during dry periods. Only trees that can tolerate seasonal wetness should be planted. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants.

These soils are moderately well suited to pasture. The main limitation is wetness, and flooding is a hazard. The main pasture plant is common bermudagrass. During flood periods, cattle can be moved to adjacent protected areas or to pastures at a higher elevation. Where suitable outlets are available, excess surface water can be removed by shallow ditches. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition.

These soils are poorly suited to cultivated crops. The main limitations are the hazard of flooding; wetness; poor tilth; and short, choppy slopes. The main suitable crops are soybeans and grain sorghum. This soil is sticky when wet and hard when dry, and it becomes cloddy if tilled when too wet or too dry. Flooding can be controlled by levees, dikes, and pumps. Proper row arrangement, field ditches, and suitable outlets help to remove excess surface water. Land grading and smoothing also improve surface drainage, but in places large volumes of soil must be moved. Returning crop residue to the soil improves tilth and fertility.

These soils are poorly suited to urban development. They generally are not suited to use as homesites because of the hazard of flooding. Wetness, low strength for roads, very high shrink-swell potential, and very slow permeability, are severe limitations for dwellings, local roads and streets, and most sanitary facilities. Major flood-control structures and extensive local drainage systems are needed to reduce wetness and the hazard of flooding. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. Septic tank absorption fields will not function properly in this wet and very slowly permeable soil during rainy periods. Where flooding is reduced, lagoons or self-contained disposal units can be used to dispose of sewage properly.

These soils are poorly suited to recreational uses. The main limitations are wetness, very slow permeability, the clayey surface layer, and the hazard of flooding. Good drainage can improve these soils for most recreational uses. Flooding can be reduced, but only by major structures, such as levees and water pumps.

These soils are well suited to use as habitat for wetland and woodland wildlife. Habitat for waterfowl and furbearers can be improved by constructing shallow ponds. Selectively harvesting to leave large den and mast-producing trees, such as oak and beech trees, can improve the habitat for deer, squirrel, and turkey.

These soils are in capability subclass IVw. The woodland ordination symbol is 4W for the Latanier soil and 3W for the Moreland soil.

Lo—Loring silt loam, 1 to 3 percent slopes

This gently sloping, moderately well drained soil is mainly on ridgetops on uplands. The areas of this soil range from about 20 to 300 acres.

Typically, the surface layer is brown silt loam about 6 inches thick. The next layer to a depth of about 10 inches is yellowish brown silt loam. The subsoil to a depth of about 23 inches is dark yellowish brown silt loam. Below this, to a depth of about 51 inches, is a fragipan. It is dark yellowish brown silt loam in the upper and middle parts and yellowish brown silt loam in the lower part. The substratum to a depth of about 60 inches is yellowish brown, mottled silt loam.

This soil has medium fertility and moderately high or high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a moderate rate above the fragipan and at a slow rate in the fragipan. Water runs off the surface at a medium rate. A seasonal high water table is perched on the fragipan at a depth of about 2 to 3 feet below the soil surface during December through March. The available water capacity is moderate or high. The effective rooting depth is about 23 inches. Plant root development and the available water capacity are limited by the fragipan. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Calhoun, Feliciana, and Olivier soils. Calhoun soils are on broad flats and in depressional areas. They are poorly drained and do not have a fragipan. Feliciana soils have more convex slopes than the Loring soil and do not have a fragipan. Olivier soils are in level areas and have gray mottles in the upper part of the subsoil. The included soils make up about 10 percent of the map unit.

This soil is used mainly as cropland or pastureland. In a few areas, it is used as homesites.

This soil is well suited to use as woodland. The potential for the production of both pine and hardwood trees is moderately high. The main concern in producing and harvesting timber is a moderate equipment use limitation caused by wetness. Competing plants can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Rutting and soil compaction can be reduced by harvesting only during dry periods.

This soil is well suited to pasture. Medium fertility is a minor limitation. Erosion is a hazard when the soil is tilled and until pasture plants become established. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, and ball clover. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Seedbed preparation should be on the contour or across the slope where practical. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitation is the moderate hazard of erosion, and medium fertility is a minor limitation. Soybean is the main crop; but corn, cotton, and sweet potatoes are also suitable crops. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. In places, irregular slopes hinder tillage operations. Plow pans develop easily, but they can be broken by deep plowing or chiseling. Limiting tillage for seedbed preparation and weed control reduces runoff and erosion. Conservation practices, such as terraces, diversions, and grassed waterways, help to prevent erosion. Drop structures placed in grassed waterways help to prevent gullying. All tillage should be on the contour or across the slope. Crop residue left on or near the surface reduces runoff and helps to maintain soil tilth and organic matter content. Most crops respond well to fertilizer and lime, which help to improve fertility and reduce the levels of exchangeable aluminum. Where water of suitable quality is available, supplemental irrigation can prevent damage to crops during dry periods.

This soil is moderately well suited to urban development. The main limitations are wetness, slow permeability, and low strength for roads. Unless internal drainage is improved, septic tank absorption fields do not function properly during rainy periods because of a seasonal high water table and slow permeability. Self-contained disposal units can be used to dispose of sewage properly. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. Mulching, fertilizing, and irrigating are needed to establish lawn grasses and other small-seeded plants. Roads and streets should be designed to offset the limited ability of the soil to support a load.

This soil is moderately well suited to recreational uses. The main limitations are wetness, slow permeability, and the hazard of erosion. Steepness of slope is a limitation for playgrounds. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. The cover can be maintained by controlling traffic. Cuts and fills should be seeded or mulched.

This soil is well suited to use as habitat for openland and woodland wildlife, such as dove, quail, rabbit, deer, and turkey. Habitat for wildlife can be improved by maintaining existing plant cover or by propagating desirable plants. In pine forests, controlled burning can increase the amount of palatable browse for deer and seed-producing plants for quail and turkey.

This Loring soil is in capability subclass IIe. The woodland ordination symbol is 10A.

Lr—Loring silt loam, 3 to 8 percent slopes

This moderately sloping or strongly sloping, moderately well drained soil is on side slopes and on narrow, convex ridgetops on uplands. The areas of this soil range from 20 to several hundred acres.

Typically, the surface layer is brown silt loam about 4 inches thick. The next layer to a depth of about 10 inches is yellowish brown silt loam. The subsoil to a depth of about 18 inches is yellowish brown silt loam. The lower part of the subsoil to a depth of about 55 inches is a yellowish brown, mottled silt loam fragipan. The substratum to a depth of about 60 inches is yellowish brown, mottled silt loam. In places, the soil is eroded and has a surface layer about 2 or 3 inches thick.

This soil has medium fertility and moderately high or high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a moderate rate above the fragipan and at a slow rate in the fragipan. Water runs off the surface at a rapid rate. A seasonal high water table is perched above the fragipan at a depth of about 2 to 3 feet below the soil surface during December through March. The available water capacity is moderate or high. The effective rooting depth is about 22 inches. Plant root development and the available water capacity are limited by the fragipan. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Feliciana soils. These soils have more convex slopes than the Loring soil and do not have a fragipan. The included soils make up about 15 percent of the map unit.

This soil is used mainly as pastureland or woodland. In a few areas, it is used as cropland.

This soil is well suited to use as woodland. The potential for the production of pine and hardwood trees is moderately high. The use of equipment is restricted somewhat by wetness, and plant competition is severe. Competing plants can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Rutting and soil compaction can be reduced by planting and harvesting only during the drier periods.

This soil is well suited to pasture. Erosion is a hazard when the soil is tilled and until pasture grasses become established. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, and ball clover. Seedbed preparation should be on the contour or across the slope where practical. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are steepness of slope, potentially toxic levels of exchangeable aluminum, and the severe hazard of erosion. Soybean is the main crop; but sweet potatoes, cotton, corn, and vegetables are also suitable crops. In places, irregular slopes hinder tillage operations. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Plow pans develop easily, but they can be broken by deep plowing or chiseling. Limiting tillage for seedbed preparation and weed control reduces runoff and erosion. Gradient terraces and contour farming reduce the risk of sheet and rill erosion on the steeper slopes. Diversions and grassed waterways also help to control erosion. Drop structures can be installed in grassed waterways to control gullying. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control gullying. Most crops respond well to fertilizer and lime, which help to improve fertility and reduce the levels of exchangeable aluminum.

This soil is moderately well suited to urban development. Wetness, steepness of slope, slow permeability, and low strength for roads and streets are the main limitations. The hazard of erosion is increased if the soil is left exposed during site development. Plans for homesite development should provide for the preservation of as many trees as possible. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. Establishing and maintaining plant cover can be achieved through proper fertilizing, seeding, mulching, and shaping of the slopes. During the rainy season, effluent from onsite sewage disposal systems can seep at points downslope. Absorption lines should be installed on the contour. Self-contained disposal units can be used to dispose of sewage properly. Roads and streets should be designed to offset the limited ability of the soil to support a load.

This soil is moderately well suited to recreational uses. The main limitations are wetness, slow permeability, and the hazard of erosion. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. The cover can be maintained by fertilizing and controlling traffic. Cuts and fills should be seeded or mulched.

This soil is well suited to use as habitat for woodland and openland wildlife, such as deer, dove, quail, squirrel, rabbit, and small nongame birds. Habitat for wildlife can be improved by selectively harvesting timber to leave large den and mast-producing trees. In pine forests, controlled burning can increase the amount of palatable browse for deer and seed-producing plants for quail and dove.

This Loring soil is in capability subclass IIIe. The woodland ordination symbol is 10A.

Lt—Lytle silt loam, 1 to 3 percent slopes

This gently sloping, well drained soil is on ridgetops on uplands. The areas of this soil range from about 20 to 200 acres.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil extends to a depth of about 70 inches. It is yellowish red silt loam and silty clay loam in the upper part, strong brown silt loam and sandy loam in the middle part, and red sandy clay loam in the lower part.

This soil has low fertility and moderately high or high levels of exchangeable aluminum in the root zone that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a medium rate. A seasonal high water table is at a depth of more than 6 feet. The available water capacity is high. The shrink-swell potential is low to a depth of 60 inches or more.

Included with this soil in mapping are a few small areas of Ruston, Smithdale, and Tangi soils. Ruston and Tangi soils are in positions similar to those of the Lytle soil. Smithdale soils are on steeper side slopes. Ruston and Smithdale soils contain more sand in the upper part of the subsoil than the Lytle soil. Tangi soils have a fragipan. The included soils make up about 15 percent of the map unit.

This soil is used mainly as woodland and pastureland. A small acreage is used as cropland, homesites, or intensive recreation areas.

This soil is well suited to use as woodland. The potential for the production of pine trees is high. The main concern in producing and harvesting timber is moderate plant competition. When the soil is moist, it is subject to rutting and compaction by logging equipment. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is well suited to pasture. The main limitations are low fertility and the moderate hazard of erosion. The main suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, ball clover, crimson clover, and arrowleaf clover. Proper stocking and pasture rotation help to keep the pasture in good condition. Seedbed preparation should be on the contour or across the slope where practical. Periodic mowing and clipping help to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are low fertility, potentially toxic levels of exchangeable aluminum, and the moderate hazard of erosion. The main suitable crops are corn and soybeans. Runoff and erosion can be reduced by plowing in fall, fertilizing, and seeding to a cover crop. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and reduce runoff and erosion. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Most crops respond well to fertilizer and lime, which help to improve fertility and reduce the high levels of aluminum in the root zone.

This soil is well suited to urban development and homesites. The main limitations are low strength for roads and streets and moderate permeability. Roads should be designed to offset the limited ability of the soil to support a load. Seepage is a problem where this soil is used for sewage lagoons. Moderate permeability increases the possibility for septic tank absorption fields to fail. This limitation can be overcome by increasing the size of the absorption field. Establishing and maintaining plant cover can be achieved through proper fertilizing, seeding, mulching, and shaping of the slopes.

This soil is well suited to recreational uses. It has few limitations for these uses. Erosion can be a hazard for playgrounds. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. The cover can be maintained by controlling traffic.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. In pine forests, controlled burning can increase the amount of palatable browse for deer and seed-producing plants for quail and turkey.

The Lytle soil is in capability subclass IIe. The woodland ordination symbol is 11A.

Ly—Lytle silt loam, 3 to 8 percent slopes

This moderately sloping or strongly sloping, well drained soil is on side slopes on uplands. The areas of this soil range from about 25 to 2,000 acres.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsurface layer to a depth of about 11 inches is yellowish brown silt loam. The subsoil to a depth of about 28 inches is yellowish red and reddish brown silty clay loam. The next part of the subsoil to a depth of about 46 inches is yellowish red and strong brown loam. To a depth of about 67 inches, it is red sandy clay loam. The lower part of the subsoil to a depth of about 81 inches is red sandy clay. In places, the soil is eroded and has a surface layer that is less than 3 inches thick.

This soil has low fertility and moderately high or high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a medium rate. A seasonal high water table is at a depth of more than 6 feet. The available water capacity is high. The shrink-swell potential is low to a depth of 67 inches.

Included with this soil in mapping are a few small areas of Ruston, Smithdale, and Tangi soils. Ruston and Tangi soils are in positions similar to those of the Lytle soil. Smithdale soils are on steeper side slopes. Ruston and Smithdale soils contain more sand in the upper part of the subsoil than the Lytle soil. Tangi soils have a fragipan. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland. In a few areas, it is used as cropland, pastureland, or homesites.

This soil is well suited to use as woodland. The potential for the production of pine trees is high. The main concern in producing and harvesting timber is moderate plant competition. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is well suited to pasture. The main limitations are steepness of slope and low fertility. Erosion is a hazard when the soil is tilled and until pasture plants become established. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, wheat, oats, ball clover, and crimson clover. Seedbed preparation should be on the contour or across the slope where practical to reduce erosion. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are steepness of slope, low fertility, and potentially toxic levels of exchangeable aluminum in the root zone. Erosion is a severe hazard. The main suitable crops are corn, soybeans, grain sorghum, and vegetables. In places, peach and pecan trees are grown (fig. 7). This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Conservation practices, such as proper crop residue management, stripcropping, contour farming, and terraces help to reduce soil loss by erosion. Most crops respond well to lime and fertilizer, which help to improve fertility and reduce the levels of exchangeable aluminum.

This soil is moderately well suited to urban uses. The main limitations are steepness of slope, moderate permeability, and low strength for roads and streets. Moderate permeability increases the possibility for septic tank absorption fields to fail. This limitation can be

Figure 7.—Peach trees grow well in areas of Lytle silt loam, 3 to 8 percent slopes.

overcome by increasing the size of the absorption field. Revegetating disturbed areas around construction sites as soon as possible helps to control erosion. Roads should be designed to offset the limited ability of the soil to support a load.

This soil is well suited to intensive recreational uses. The main limitation is steepness of slope. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover.

This soil is well suited to use as habitat for openland and woodland wildlife. Wooded areas provide habitat for deer, turkey, quail, squirrel, and many nongame birds and animals. Openland areas can provide habitat for rabbit, quail, and many nongame species. Openland areas can be improved for wildlife habitat by setting aside small plots in which appropriate vegetation is planted. Habitat for woodland wildlife can be improved by encouraging the growth of oak and other mast-producing trees.

This Lytle soil is in capability subclass IIIe. The woodland ordination symbol is 10A.

MB—Morganfield and Bigbee soils, frequently flooded

These nearly level to gently sloping soils are on flood plains. The Morganfield soil is well drained, and the Bigbee soil is excessively drained. These soils are subject to frequent flooding for brief periods. The Morganfield soil is on low, convex ridges a moderate distance away from major drainageways; and the Bigbee soil is at higher elevations on convex ridges adjacent to stream channels. This map unit is about 60 percent Morganfield soil and about 30 percent Bigbee soil. Each of these soils can be mapped separately, but because frequent flooding limits the use and management of these soils, they were not separated in mapping. Most mapped areas contain both soils, but some areas contain only one. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soils. Slopes range from 0 to 2 percent.

Typically, the Morganfield soil has a surface layer of brown silt loam about 4 inches thick. The underlying material to a depth of about 60 inches is yellowish brown silt in the upper part, silt loam in the middle part, and very fine sandy loam in the lower part.

This Morganfield soil has medium fertility. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from about 3 to 4 feet below the soil surface during January through April. Flooding occurs frequently throughout the year, but more commonly in winter and spring. The available water capacity is high or very high. The shrink-swell potential is low.

Typically, the Bigbee soil has a surface layer of brown loamy sand about 7 inches thick. The underlying material to a depth of about 60 inches is light yellowish brown loamy sand in the upper part, yellowish brown loamy sand in the middle part, and light yellowish brown sand in the lower part.

This Bigbee soil has low fertility. Water and air move through this soil at a rapid rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from about 3.5 to 6 feet below the soil surface during January through March. Flooding occurs for brief periods throughout the year, but more commonly in winter and spring. The available water capacity is very low or low. The shrink-swell potential is low.

Included with the Morganfield and Bigbee soils in mapping are a few small areas of Calhoun and Weyanoke soils. Weyanoke soils are on terraces at a higher elevation than the Morganfield and Bigbee soils and have a brownish subsoil. Calhoun soils are on broad flats on adjacent terraces. They are poorly drained and are gray throughout the profile. The included soils make up about 10 percent of the map unit.

The Morganfield and Bigbee soils are used mainly as woodland. A small acreage is used as pastureland.

These soils are moderately well suited to use as woodland. The potential for the production of hardwood trees is high for the Morganfield soil. The potential for the production of pine trees is moderate for the Bigbee soil. The main concerns in producing and harvesting timber are moderate seedling mortality and equipment use limitation caused by flooding. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Conventional methods of harvesting timber generally can be used except during periods of flooding, generally in winter and spring. Logging should be done during the drier periods to reduce soil compaction and rutting.

These soils are poorly suited to pasture because of the hazard of flooding. The main suitable pasture plants are common bermudagrass and bahiagrass. Singletary peas, white clover, tall fescue, and vetch have a moderate tolerance to flooding and can be grown in some places. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. It generally is not practical to apply high rates of fertilizer or lime because of frequent overflow. During flood periods, cattle can be moved to adjacent protected areas or to pastures at a higher elevation.

These soils are poorly suited to cultivated crops because of the hazard of flooding. Soil droughtiness in summer and low or medium fertility are additional limitations.

These soils are poorly suited to urban and intensive recreational uses. They generally are not suited to use as homesites because of the hazard of flooding. Seasonal wetness and soil droughtiness in summer and autumn are additional limitations. Flooding can be controlled, but only by major flood-control structures, such as levees and water pumps.

These soils are well suited to use as habitat for woodland wildlife and moderately well suited to use as habitat for openland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Selectively harvesting to preserve oak and other large mast-producing trees can improve the habitat for deer, squirrel, and turkey.

The Morganfield soil is in capability subclass IVw, and the Bigbee soil is in capability subclass IIIs. The woodland ordination symbol is 13W for the Morganfield soil and 9S for the Bigbee soil.

Oa—Olivier silt loam, 0 to 1 percent slopes

This nearly level, somewhat poorly drained soil is on broad, slightly convex ridges on terraces. Individual areas of this soil range from about 20 to 200 acres.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsurface layer is light brownish gray silt loam about 5 inches thick. The subsoil to a depth of about 24 inches is light yellowish brown, mottled silt loam. The subsoil to a depth of about 60 inches is a light yellowish brown, mottled silt loam fragipan.

This soil has medium fertility and moderately high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through the fragipan at a slow rate. Water runs off the surface at a slow rate. A perched seasonal high water table ranges from about 1 foot to 2.5 feet below the soil surface during December through April. The available water capacity is high. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Calhoun, Deerford, Feliciana, and Loring soils. Calhoun soils are in slightly depressional areas or along drainageways. They are poorly drained and are gray throughout the profile. Deerford soils are in positions similar to those of the Olivier soil and have high levels of exchangeable sodium in the lower part of the subsoil. Feliciana and Loring soils are in higher positions on the landscape than the Olivier soil and do not have gray mottles in the upper part of the subsoil. In addition, the Feliciana soils do not have a fragipan. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland and pastureland. A small acreage is used as cropland or homesites.

This soil is well suited to use as woodland. The potential for the production of pine and hardwood trees is very high. The main concerns in producing and harvesting timber are a moderate equipment use limitation caused by wetness and severe competition from understory plants. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Conventional methods of harvesting timber can be used except during rainy periods, generally from December to April.

This soil is well suited to pasture. The main limitations are wetness and low fertility. The main suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, white clover, wild winter peas, vetch, tall fescue, and ryegrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes. Excess water on the surface can be removed by field ditches and suitable outlets.

This soil is moderately well suited to cultivated crops. The main limitations are medium fertility, wetness, and potentially toxic levels of exchangeable aluminum in the root zone. The main suitable crops are soybeans, truck crops, corn, wheat, and grain sorghum (fig. 8). This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Proper row arrangement, field ditches, and suitable outlets help to remove excess surface water. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth. Crops respond well to lime and fertilizer, which help to increase soil fertility and reduce the levels of exchangeable aluminum.

This soil is poorly suited to urban development. The main limitations are wetness, low strength for roads and streets, moderate shrink-swell potential, and slow permeability. This soil has severe limitations for building sites, local roads and streets, and most sanitary facilities. Excess water can be removed by shallow ditches and by providing the proper grade. Footings and foundations of buildings can be strengthened to prevent structural damage from the shrinking and swelling of the soil. Slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. Lagoons or self-contained disposal units can be used to dispose of sewage properly. Drainage can improve this soil for growing lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens.

This soil is moderately well suited to recreational uses. The main limitations are wetness and slow permeability. Good drainage can improve this soil for most recreational uses. Excess water can be removed by shallow ditches or by providing the proper grade.

Figure 8.—Winter wheat grows well in areas of Olivier silt loam, 0 to 1 percent slopes.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. In pine forests, controlled burning can increase the amount of palatable browse for deer and seed-producing plants for quail and turkey.

This Olivier soil is in capability subclass IIw. The woodland ordination symbol is 11W.

Ob—Olivier silt loam, 1 to 3 percent slopes

This gently sloping, somewhat poorly drained soil is on low, narrow ridges and side slopes on terraces along drainageways. Individual areas of this soil range from about 10 to 100 acres.

Typically, the surface layer is dark grayish brown silt loam about 7 inches thick. The subsurface layer is light yellowish brown, mottled silt loam. The subsoil to a depth of about 26 inches is yellowish brown, mottled silt loam. Below this, to a depth of about 60 inches, is a yellowish brown silt loam fragipan. It is mottled in the upper part.

This soil has medium fertility. Permeability is slow in the fragipan. Water runs off the surface at a medium rate. Water is perched above the fragipan at a depth of 1 foot to 2.5 feet below the soil surface during December through April. The effective rooting depth is about 26 inches. The available water capacity is high. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Calhoun, Deerford, Feliciana, and Loring soils. Calhoun soils are in slightly depressional areas or along drainageways. They are poorly drained and are gray throughout the profile. Deerford soils are in positions similar to those of the Olivier soil and have high levels of exchangeable sodium in the lower part of the subsoil. Feliciana and Loring soils are in higher positions on the landscape than the Olivier soil and do not have gray mottles in the upper part of the subsoil. In addition, the Feliciana soils do not have a fragipan. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland. In a few areas, it is used as pastureland, cropland, or homesites.

This soil is well suited to use as woodland. The potential for the production of pine and hardwood trees is high. The main concerns in producing and harvesting timber are a moderate equipment use limitation caused by wetness and severe competition from understory plants. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Rutting and soil compaction can be reduced by planting and harvesting during the drier seasons.

This soil is well suited to pasture (fig. 9). The main limitations are the slight hazard of erosion during the

Figure 9.—A pasture of bahiagrass in an area of Olivier silt loam, 1 to 3 percent slopes.

establishment period, wetness, and medium fertility. The main suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, ball clover, crimson clover, arrowleaf clover, and ryegrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are medium fertility, wetness, potentially toxic levels of aluminum, and the slight hazard of erosion. The main suitable crops are soybeans, corn, grain sorghum, and truck crops. Seedbed preparation should be on the contour or across the slope where practical to reduce erosion. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Excess water on the surface can be removed by field ditches and suitable outlets. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to reduce erosion and maintain fertility and tilth. Crops respond well to lime and fertilizer, which help to increase soil fertility and reduce the levels of exchangeable aluminum.

This soil is poorly suited to urban development. The main limitations are low strength for roads and streets, moderate shrink-swell potential, slow permeability, and wetness. A seasonal high water table is perched above the fragipan, and drainage should be provided if buildings are constructed. Preserving the existing plant cover during construction helps to control erosion. Slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. Lagoons or self-contained disposal units can be used to dispose of sewage properly. Buildings and roads should be designed to offset the effects of shrinking and swelling. Establishing and maintaining plant cover can be achieved through proper fertilizing, seeding, mulching, and shaping of the slopes.

This soil is moderately well suited to recreational uses. The main limitations are wetness and slow permeability. Good drainage can improve this soil for most recreational uses. Excess water can be removed by shallow ditches or by providing the proper grade.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Selectively harvesting to preserve oak and other mast-producing trees can improve the habitat for deer, squirrel, and turkey.

This Olivier soil is in capability subclass IIe. The woodland ordination symbol is 11W.

OG—Ouachita, Ochlockonee, and Guyton soils, frequently flooded

These gently undulating soils are on flood plains. The Ouachita and Ochlockonee soils are well drained, and the Guyton soil is poorly drained. These soils are subject to brief to long periods of flooding throughout the year, but more commonly in winter and spring. The Ouachita and Ochlockonee soils are on low ridges, and the Guyton soil is in low positions between the ridges. The areas of these soils typically are long and narrow and range to several thousand acres. They are about 35 percent Ouachita soil, about 30 percent Ochlockonee soil, and about 20 percent Guyton soil. Each of these soils can be mapped separately, but because frequent flooding limits the use and management of these soils, they were not separated in mapping. Most mapped areas contain all three soils, but some areas contain only one or two. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soil. Slopes range from 1 to 3 percent on the ridges. Slopes are less than 1 percent in the low positions between ridges.

The Ouachita soil has a surface layer of brown silt loam about 7 inches thick. The subsoil to a depth of about 48 inches is dark yellowish brown silt loam and silty clay loam in the upper part; yellowish brown silty clay loam in the middle part; and yellowish brown, mottled silt loam in the lower part. The substratum to a depth of about 60 inches is mottled yellowish brown and light brownish gray fine sandy loam.

This Ouachita soil has low fertility and high levels of exchangeable aluminum in the root zone that are potentially toxic to crops. Water and air move through this soil at a moderately slow rate. Water runs off the surface at a slow rate. A seasonal high water table is at a depth of more than 6 feet. The available water capacity is high or very high. The shrink-swell potential is low.

The Ochlockonee soil has a surface layer of brown fine sandy loam about 6 inches thick. The underlying material to a depth of about 60 inches is yellowish brown sandy loam in the upper part, light yellowish brown loam in the middle part, and dark yellowish brown sandy loam in the lower part.

This Ochlockonee soil has low fertility and high levels of exchangeable aluminum in the root zone that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. A seasonal high water table is at a depth of 3 to 5 feet below the surface from December to April. The available water capacity is moderate or high. The shrink-swell potential is low.

The Guyton soil has a surface layer of dark grayish brown silt loam about 5 inches thick. The subsurface layer to a depth of about 25 inches is light brownish gray, mottled silt loam. The next layer to a depth of about 35 inches is gray, mottled silty clay loam and tongues of silt loam. The subsoil to a depth of about 65 inches is gray, mottled silty clay loam in the upper part and clay loam in the lower part. In places, the subsoil is loam or clay loam throughout.

This Guyton soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through this soil at a slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from about 1.5 feet below the soil surface to near the surface during December through May. The available water capacity is high or very high. This soil dries out more slowly than most adjacent soils at higher elevations. The shrink-swell potential is low.

Included with the Ouachita, Ochlockonee, and Guyton soils in mapping are a few small areas of Dexter, Fluker, and Kenefick soils. All of these soils are on nearby terraces. Dexter and Kenefick soils have a reddish or a brownish and reddish subsoil. Fluker soils have a fragipan. The included soils make up about 15 percent of the map unit.

The Ouachita, Ochlockonee, and Guyton soils are used mainly as woodland. A small acreage is used as pastureland.

These soils are moderately well suited to use as

Figure 10.—Hardwood trees provide habitat for wildlife on Ouachita, Ochlockonee, and Guyton soils, frequently flooded.

woodland. The potential for the production of pine and hardwood trees is high. However, woodland management is difficult because of the hazard of frequent flooding. The main concerns in producing and harvesting timber are moderate or severe seedling mortality and equipment use limitation caused by wetness and flooding. Only trees that can tolerate seasonal wetness should be planted. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Conventional methods of harvesting timber generally can be used except during rainy periods and periods of flooding, generally from December to May. Logging should be done during the drier periods to reduce soil compaction and rutting.

These soils are poorly suited to pasture. Low fertility is a limitation, and flooding is a hazard. Wetness is an additional limitation for the Guyton soil. The main suitable pasture plants are common bermudagrass and bahiagrass. Singletary peas, white clover, tall fescue, and vetch have a moderate tolerance to flooding and can be grown in some places. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. It generally is not practical to apply high rates of fertilizer and lime because of frequent overflow. During flood periods, cattle can be moved to adjacent protected areas or to pastures at a higher elevation.

These soils are not suited to cultivated crops, urban uses, and intensive recreational uses. The hazard of flooding is too severe for these uses.

These soils are well suited to use as habitat for woodland wildlife (fig. 10). The Guyton soil is also well suited to use as habitat for wetland wildlife, such as waterfowl and furbearers. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Habitat for waterfowl can be improved by constructing shallow ponds.

The Ouachita, Ochlockonee, and Guyton soils are in capability subclass Vw. The woodland ordination symbol is 11W for the Ouachita and Ochlockonee soils and 6w for the Guyton soil.

PA—Pits-Arents complex, 0 to 5 percent slopes

This nearly level to moderately sloping complex consists of Pits and Arents soils on terraces. The Pits are open excavations from which sand, gravel, or loamy material was removed. The Arents soils are on the piles of soil material left beside the pits after the sand, gravel, or other soil material was removed. The areas of this map unit range from about 5 to several hundred acres. This map unit is about 65 percent Pits and about 25 percent Arents soil. The Pits and Arents soils are so intricately intermingled that it is not practical to map them separately at the scale used.

Gravel pits are open excavations from which gravel has been mined. Sand pits are areas from which only sand has been removed (fig. 11). Borrow pits are areas from which soil and the underlying material have been removed for use in construction of roads and as fill in other areas.

The floor and walls of most pits are exposed geologic strata. This material has low fertility and generally is droughty to plants. Pits support little or no vegetation; however, a few willow trees and annual weeds grow on the floor of some pits. In wet seasons some pits are ponded for long periods. A seasonal high water table in other pits ranges from near the surface to about 4 feet below the surface.

Typically, the Arents soil consists of stratified and mixed sandy and loamy soil material. This soil is on spoil banks or piles of soil material left beside pits after the sand, gravel, or other material was removed. In places, thick or thin clayey layers are included in this soil.

This Arents soil has low fertility. A seasonal high water table is at a depth of more than 6 feet in most places. The available water capacity and permeability are variable within short distances. In many places, this soil is droughty to most plants.

Included with Pits and the Arents soil in mapping are a few small undisturbed areas of Fluker, Guyton, and Kenefick soils. These soils differ from the Arents soil in having an orderly sequence of soil horizons in the profile. Also included are small areas of Arents soils that have slopes that range from 6 to 15 percent. The included soils make up about 10 percent of the map unit.

Most areas of pits and Arents soils are idle or used only as intensive recreation areas or as habitat for wildlife. The natural vegetation consists mainly of annual and perennial grasses and forbs. Scrub pine trees are in some areas of the Arents soils, and willow trees are growing in many of the pits.

This map unit is poorly suited to use as cropland, pastureland, woodland, and urban and recreational areas. The main limitations are the uneven topography, restricted drainage, ponding, and the hazard of erosion. Some areas flood occasionally or frequently. Pits require major reclamation before they can be used for growing crops or as pasture. The Arents soils can be planted to common bermudagrass or pine trees to protect the soils from erosion, but the trees and grass grow slowly because of low fertility and droughtiness. Water collects in some of the Pits and provides habitat for ducks.

The Pits and Arents soils are in capability subclass VIs. This map unit is not in a woodland ordination group.

Figure 11.—Sand is removed for construction material from this area of Pits-Arents complex, 0 to 5 percent slopes.

RA—Riverwash

This level map unit consists of recent deposits of very strongly acid to medium acid sands. It is on the flood plains of major rivers and streams and is frequently flooded. In some areas, the stratified sand layers are bedded with thin strata of silt. Riverwash is too droughty to support plant growth. A seasonal high water table is at a depth of 0.5 foot to 6 feet below the surface from November to April. Slopes dominantly are less than 1 percent.

Included with Riverwash in mapping are a few small areas of silty material that support willow trees. Also included are a few small areas of gravel beds.

Riverwash is in capability subclass Vw. This map unit is not in a woodland ordination group.

RC—Robinsonville and Convent soils, occasionally flooded

These nearly level to undulating, well drained and somewhat poorly drained soils are in high and intermediate positions on natural levees on the flood plain of the Mississippi River. The Robinsonville soils are on low, convex ridges, and the Convent soils are in shallow swales. These soils are subject to occasional flooding for brief to long periods and to scouring and deposition.

This map unit is about 60 percent Robinsonville soil and about 30 percent Convent soils. Each of these soils can be mapped separately, but because occasional flooding limits the use and management of these soils, they were not separated in mapping. Most mapped areas are made up of both soils, but the proportion of each soil varies from place to place. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soils. Slopes range from 1 to 5 percent on ridges and from 0 to 3 percent in swales.

Typically, the Robinsonville soil has a surface layer of brown fine sandy loam about 7 inches thick. The underlying material to a depth of about 60 inches is brown loamy fine sand and fine sandy loam.

This Robinsonville soil has high fertility. Water and air move through this soil at a moderate or moderately rapid rate. Surface runoff is slow or medium. Available water capacity is moderate or high. A seasonal high water table is at a depth of 4 to 6 feet below the soil surface from January to April. The shrink-swell potential is low.

Typically, the Convent soil has a surface layer of dark grayish brown silt loam about 4 inches thick. The underlying material to a depth of about 60 inches is grayish brown silt loam and very fine sandy loam.

This Convent soil is high in natural fertility. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. A seasonal high water table is at a depth of 1.5 to 4 feet below the soil surface from December to April. The available water capacity is high or very high. The shrink-swell potential is low.

Included with the Robinsonville and Convent soils in mapping are a few small areas of Commerce soils. Commerce soils are in positions similar to those of the Convent soil and have more clay in the underlying material. Also included are a few areas on Turnbull Island that do not flood or rarely flood. The included soils make up about 10 percent of the map unit.

The Robinsonville and Convent soils are used mainly as woodland. A small acreage is used as pastureland or cropland.

These soils are well suited to use as woodland. The potential for the production of hardwood trees is high. Wetness limits the use of equipment somewhat in areas of the Convent soil. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Planting and harvesting can be done during the drier seasons to reduce rutting and soil compaction.

These soils are well suited to pasture. Wetness is a limitation and flooding is a hazard for the Convent soil. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, ryegrass, Johnson grass, and white clover. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. During flood periods, cattle can be moved to protected areas or to pastures at a higher elevation.

These soils are moderately suited to cultivated crops, mainly short season crops, such as soybeans, millet, and grain sorghum. In some years, crops are damaged by flooding in late spring or in summer. It is not practical to install a drainage system on these soils because the soils are on the unprotected side of the levee and are subject to occasional flooding.

These soils are poorly suited to urban and intensive recreational uses because of the hazard of flooding. They generally are not suited to use as dwellings. There is no feasible way to protect these areas from flooding.

These soils are well suited to use as habitat for woodland and openland wildlife. Selectively harvesting to preserve oak and other large mast-producing trees can improve the habitat for deer, squirrel, and turkey.

Robinsonville and Convent soils are in capability subclass IIIw. The woodland ordination symbol is 11A for the Robinsonville soil and 13W for the Convent soil.

Rs—Ruston sandy loam, 1 to 5 percent slopes

This gently sloping to moderately sloping, well drained soil is on ridgetops on uplands. Areas of this soil range from about 20 to 50 acres.

Typically, the surface layer is dark grayish brown sandy loam about 2 inches thick. The subsurface layer is yellowish brown sandy loam about 2 inches thick. The subsoil to a depth of about 35 inches is yellowish red clay loam. To a depth of about 45 inches, it is yellowish red and yellowish brown sandy loam. The lower part of the subsoil to a depth of about 60 inches is yellowish red sandy loam.

Included with this soil in mapping are a few small areas of Lytle and Tangi soils. These soils are in positions similar to those of the Ruston soil and contain more silt and less sand in the subsoil. In addition, the Tangi soils have a fragipan. The included soils make up about 10 percent of the map unit.

This soil has low fertility and high levels of exchangeable aluminum in the root zone that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a medium rate. A seasonal high water table is at a depth of more than 6 feet below the surface throughout the year. The available water capacity is moderate or high. The shrink-swell potential is low.

This soil is used mainly as woodland and pastureland. A small acreage is used as cropland or homesites.

This soil is well suited to use as woodland. It has few limitations for producing and harvesting timber. The potential for the production of pine trees is high.

This soil is well suited to pasture. The main limitations are low fertility and the moderate hazard of erosion. The main suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, ball clover, crimson clover, and arrowleaf clover. Proper stocking and pasture rotation helps to keep the pasture in good condition. Seedbed preparation should be on the contour or across the slope where practical to reduce erosion. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are low fertility, potentially toxic levels of exchangeable aluminum, and the moderate hazard of erosion. The main suitable crops are corn and soybeans. Runoff and erosion can be reduced by plowing in fall, fertilizing, and seeding to a cover crop. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and reduce runoff and erosion. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Most crops respond well to fertilizer and lime, which help to increase soil fertility and reduce the levels of exchangeable aluminum.

This soil is moderately well suited to urban development. The main limitations are low strength for local roads and streets and moderate permeability. Steepness of slope is also a limitation for small commercial buildings. Roads should be designed to offset the limited ability of the soil to support a load. Seepage is a problem where this soil is used for sewage lagoons. Moderate permeability increases the possibility for septic tank absorption fields to fail. This limitation can be overcome by increasing the size of the absorption field. Establishing and maintaining plant cover can be achieved through proper fertilizing, seeding, mulching, and shaping of the slopes.

This soil is well suited to recreational uses. It has few limitations for these uses. Erosion can be a hazard for playgrounds. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. The cover can be maintained by controlling traffic.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. In wooded areas, small clear-cuts in irregular shapes provide maximum edge for use by deer. Hardwood trees can be left along drainages and streams to provide travel lanes, escape cover, and food for deer, turkey, and squirrel.

This Ruston soil is in capability subclass IIe. The woodland ordination symbol is 9A.

Sa—Sharkey clay

This level, poorly drained soil is on alluvial plains. It is in intermediate and low positions on natural levees of the Mississippi River and its distributaries. This soil is subject to rare flooding. The mapped areas of this soil range from about 10 to several hundred acres. Slopes are less than 1 percent.

Typically, the surface layer is very dark grayish brown clay about 6 inches thick. The next layer to a depth of about 9 inches is very dark grayish brown, mottled clay. The subsoil to a depth of about 60 inches is dark gray, mottled clay in the upper and middle parts and gray, mottled clay in the lower part. In places, the surface layer is silty clay loam.

This soil has high fertility. Water and air move through this soil at a very slow rate. Water runs off the surface at a very slow rate. Flooding is rare, but can occur during unusually wet periods. A seasonal high water table ranges from the soil surface to a depth of about 2 feet below the surface during December through April. The surface layer of this soil is very sticky when wet and very hard when dry. The available water capacity is moderate or high. The shrink-swell potential is very high.

Included with this soil in mapping are a few small areas of Commerce soils. These soils are in higher positions than the Sharkey soil and are loamy throughout the profile. The included soils make up about 10 percent of the map unit.

This soil is used mainly as cropland, pastureland, or urban and industrial areas. A small acreage is used as woodland or intensive recreation areas.

This soil is moderately well suited to use as woodland. The potential for the production of hardwood trees is high. The main concerns in producing and harvesting timber are a severe equipment use limitation and moderate seedling mortality caused by wetness. Drainage and special site preparation, such as bedding and harrowing, help to reduce seedling mortality. If site preparation is not adequate, competition from undesirable plants can prevent or prolong natural or artificial reestablishment of trees. Trees that can tolerate seasonal wetness should be planted. Because the clayey soil is sticky when wet, most planting and harvesting equipment can be used only during dry periods.

This soil is well suited to pasture. It is limited mainly by wetness. The main suitable pasture plants are common bermudagrass, improved bermudagrass, dallisgrass, tall fescue, white clover, and ryegrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer is needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are wetness and poor tilth. The main crops are cotton, sugarcane, corn, truck crops, and soybeans. This soil is sticky when wet and hard when dry, and it becomes cloddy if tilled when too wet or too dry. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth. Proper row arrangement, field ditches, and suitable outlets help to remove excess surface water. Land grading and smoothing improve surface drainage and permit more efficient use of farm equipment.

This soil is poorly suited to urban development. Wetness, very high shrink-swell potential, very slow permeability, the hazard of flooding, and low strength for roads are the main limitations. Drainage and protection from flooding are needed for most urban uses. The effects of shrinking and swelling can be minimized by proper engineering designs and by backfilling with material that has low shrink-swell potential. Roads should be designed to offset the limited ability of the soil to support a load. Very slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. If housing density is moderate to high, a community sewage system is needed.

This soil is poorly suited to intensive recreational uses. The main limitations are wetness, the clayey surface layer, and very slow permeability. Good drainage can improve this soil for most recreational uses. If this soil is used as playgrounds or other intensively used recreation areas, sandy or loamy material should be added to the surface to reduce wetness and stickiness of the surface layer.

This soil is well suited to use as habitat for woodland and wetland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Crop residue or stubble from grain sorghum or corn can be left over winter to provide food and cover for quail, rabbit, turkey, and numerous nongame birds and animals. Where agricultural lands border the forest, field borders can be planted with shrubs or annual game-food mixtures to provide food and cover for deer, quail, rabbit, and turkey.

This Sharkey soil is in capability subclass IIIw. The woodland ordination symbol is 6W.

SH—Sharkey clay, frequently flooded

This level, poorly drained soil is on flood plains. It is in low positions on natural levees of the Mississippi River and its distributaries. This soil is subject to frequent flooding for brief to very long periods, mainly from December to July. The mapped areas of this soil range from about 10 to 2,000 acres. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface layer is very dark gray clay about 6 inches thick. The subsoil to a depth of about 45 inches is dark gray, mottled clay in the upper part and gray, mottled clay in the lower part. The substratum to a depth of about 60 inches is gray clay.

Included with this soil in mapping are a few small areas of Commerce and Fausse soils. Also included are small areas of Sharkey soils in high positions that are subject to occasional flooding. Commerce soils are in slightly higher positions than the Sharkey soil. Commerce soils are loamy throughout the profile. Fausse soils are in backswamp areas and are very poorly drained. The included soils make up about 15 percent of the map unit.

This soil has high fertility. Water and air move through this soil at a very slow rate. Water runs off the surface at a very slow rate. A seasonal high water table ranges from the soil surface to a depth of about 2 feet below the surface from December to April. The available water capacity is moderate or high. The shrink-swell potential is very high.

This soil is used mainly as woodland and pastureland. In a few areas, it is used as cropland.

This soil is moderately well suited to use as woodland. The potential for the production of bottomland hardwoods is high. The main concerns in producing and harvesting timber are the hazard of flooding and severe seedling mortality and equipment use limitation caused by wetness. If site preparation is not adequate, competition from undesirable plants can prevent or prolong natural or artificial reestablishment of trees. Trees that can tolerate seasonal wetness, such as baldcypress, should be planted. Because the clayey soil is sticky when wet, most planting and harvesting equipment can be used only during dry periods.

This soil is poorly suited to pasture. Frequent flooding prevents intensive management practices. Wetness limits the choice of plants and the period of grazing. The main suitable pasture plant is common bermudagrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. During flood periods, cattle can be moved to protected areas or to pastures at a higher elevation.

This soil is not suited to cultivated crops. Wetness and frequent flooding are too severe for this use. This soil can be protected from flooding only by constructing an extensive system of levees.

This soil is not suited to urban and intensive recreational uses. Wetness and flooding are too severe for these uses. Other limitations are very high shrink-swell potential, low strength for roads, and very slow permeability. Major flood-control structures and extensive local drainage systems are needed to protect the soil from flooding. Roads should be raised above the expected flood elevation and designed to offset the limited ability of the soil to support a load. Roads, buildings, and streets should be designed to withstand very high shrink-swell potential. Septic tank absorption fields do not function properly because of wetness and very slow permeability.

This soil is moderately well suited to use as habitat for woodland and wetland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Shallow ponds can be constructed to provide open water areas for waterfowl and furbearers.

This Sharkey soil is in capability subclass Vw. The woodland ordination symbol is 4W.

SM—Smithdale sandy loam, 8 to 30 percent slopes

This moderately sloping to steep, well drained soil is on escarpments between the uplands and alluvial plains and on side slopes along major entrenched drainageways on uplands. Gullies cross some areas of this soil. The areas of this soil are irregular in shape and range from 20 to 200 acres. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soil.

Typically, the surface layer is dark grayish brown sandy loam about 2 inches thick. The subsurface layer is yellowish brown sandy loam about 6 inches thick. The subsoil to a depth of about 68 inches is yellowish red sandy clay loam in the upper part, red sandy clay loam in the middle part, and red sandy loam in the lower part. In places, the soil is eroded and the surface layer has been eroded away.

This soil has low fertility and high levels of exchangeable aluminum in the root zone that are potentially toxic to crops. Water and air move through this soil at a moderate rate. Water runs off the surface at a rapid rate. A seasonal high water table is at a depth of more than 6 feet. The available water capacity is moderate or high. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Lytle, Ruston, and Tangi soils. These soils are on the upper part of side slopes that are less steep than those of the Smithdale soil. The Lytle and Tangi soils have more silt and less sand in the subsoil than the Smithdale soil. In addition, the Tangi soils have a fragipan. Ruston soils have a bisequum in the profile. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland and pastureland or hayland (fig. 12). A small acreage is used as recreation areas.

This soil is moderately well suited to use as woodland. The potential for the production of pine trees is moderately high. The main concerns in producing and harvesting timber are a moderate equipment use limitation and the moderate hazard of erosion because of moderately steep slopes. In places, gullies also limit the use of equipment. Mechanical planting of trees on the contour helps to control erosion. Roads and landings can be protected from erosion by constructing diversions and by seeding cuts and fills.

This soil is moderately well suited to pasture. The main limitations are low fertility and the hazard of erosion during the establishment period. In places, the use of equipment is limited by gullies. The main suitable pasture plants are bahiagrass, common bermudagrass, ball clover, and crimson clover. Seedbed preparation should be on the contour or across the slope where practical to reduce erosion. Drop structures can be installed in grassed waterways where needed to prevent gullying. Proper grazing, weed control, and fertilizer are needed for maximum quality of forage.

This soil is not suited to use as cropland because of the moderately steep slopes and the severe hazard of erosion.

This soil is poorly suited to urban development, mainly because of the moderately steep slopes. Preserving the existing plant cover or revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. Effluent from septic tank absorption fields can surface in downslope areas and create a hazard to health. Self-contained disposal units are better suited to dispose of sewage properly than conventional septic tank absorption lines. Seepage is a problem in sanitary facilities, such as sewage lagoons.

This soil is poorly suited to intensive recreational uses. The moderately steep slopes limit the recreational use of this soil mainly to paths and trails, which should extend across the slope.

This soil is well suited to use as habitat for woodland wildlife, such as deer, squirrel, turkey, and other nongame birds and animals. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Large mast-producing trees, such as oak, should be preserved where possible. Creating small open areas in forest land can encourage the growth of understory plants for use as habitat for wildlife.

This Smithdale soil is in capability subclass VIe. The woodland ordination symbol is 10R.

Ta—Tangi silt loam, 1 to 3 percent slopes

This gently sloping, moderately well drained soil is on narrow or broad ridgetops on uplands. Areas of this soil range from about 5 to several hundred acres.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsoil to a depth of about 20 inches is strong brown silty clay loam in the upper part and yellowish brown silt loam in the lower part. Below this, to a depth of about 63 inches, is a fragipan. It is brownish yellow,

Figure 12.—Hayland in an area of Smithdale sandy loam, 8 to 30 percent slopes.

mottled silt loam in the upper part; strong brown, mottled loam in the middle part; and mottled red and strong brown clay loam and clay in the lower part. The next part of the subsoil to a depth of about 80 inches is red, mottled sandy clay.

This soil has low fertility and moderately high or high levels of exchangeable aluminum in the root zone that are potentially toxic to crops. Permeability is moderate in the upper part of the soil and slow or very slow in the fragipan. Water runs off the surface at a medium rate. Water is perched above the fragipan at a depth of about 1.5 to 3 feet during December through April. The effective rooting depth is limited by the fragipan. The available water capacity is moderate or high. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Bude, Lytle, and Ruston soils. Bude soils are in nearly level areas and have gray mottles in the upper part of the subsoil. Lytle and Ruston soils are in positions similar to those of the Tangi soil and do not have a fragipan. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland, pastureland, and cropland. A small acreage is used as homesites or intensive recreation areas.

This soil is well suited to use as woodland. It has few limitations for use and management. The potential for the production of pine trees is high. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Logging should be done during the drier seasons to prevent soil compaction.

This soil is well suited to pasture. The main limitations are the moderate hazard of erosion during the establishment period and low fertility. The main suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, ball clover, crimson clover, arrowleaf clover, and ryegrass. Seedbed preparation should be on the contour or across the slope where practical to reduce erosion. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are low fertility, potentially toxic levels of exchangeable aluminum, and the moderate hazard of erosion. The main suitable crops are soybeans and corn (fig. 13). This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Runoff and erosion can be reduced by plowing in fall, fertilizing, and seeding to a cover crop. Contour farming and terraces also reduce erosion. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth. Crops respond well to fertilizer and lime, which help to increase soil fertility and reduce the levels of exchangeable aluminum.

This soil is moderately well suited to urban development. The main limitations are low strength for roads, slow and very slow permeability, moderate shrink-swell potential, and wetness. Seepage is a problem in some sanitary facilities. A seasonal high water table is perched above the fragipan,

Figure 13.—Corn grows well in areas of Tangi silt loam, 1 to 3 percent slopes.

and drainage should be provided if buildings are constructed. Preserving the existing plant cover during construction helps to control erosion. Roads should be designed to offset the limited ability of the soil to support a load. Slow and very slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. Self-contained disposal units can be used to dispose of sewage properly. Footings and foundations of buildings can be strengthened to prevent structural damage from the shrinking and swelling of the soil.

This soil is moderately well suited to recreational uses. Wetness and slow or very slow permeability are the main limitations. Good drainage can improve this soil for most recreational uses. Erosion is a hazard for playgrounds. Cuts and fills can be seeded or mulched to reduce erosion. Plant cover can be maintained by controlling traffic and by applying fertilizer and lime.

This soil is well suited to use as habitat for woodland and openland wildlife, such as deer, squirrel, rabbit, turkey, quail, dove, and other small birds and animals. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. In wooded areas, controlled burning and small clear-cuts can increase the amount of palatable browse for deer and seed-producing plants for quail and turkey.

This Tangi soil is in capability subclass IIe. The woodland ordination symbol is 13A.

Tg—Tangi silt loam, 3 to 8 percent slopes

This moderately sloping or strongly sloping, moderately well drained soil is on side slopes on uplands along

Figure 14.—Virginia pine trees grow well in areas of Tangi silt loam, 3 to 8 percent slopes. These trees are grown for use as Christmas trees.

drainageways. The areas of this soil range from about 20 to several hundred acres.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsoil to a depth of about 19 inches is strong brown, mottled silty clay loam in the upper part and strong brown, mottled silt loam in the lower part. Below this, to a depth of about 37 inches, is a fragipan. It is strong brown and dark brown, mottled loam. To a depth of about 60 inches, it is strong brown, mottled clay loam.

This soil has low fertility and moderately high or high levels of exchangeable aluminum in the root zone that are potentially toxic to crops. Water and air move through the upper part of this soil at a moderate rate and through the fragipan at a slow or very slow rate. Water runs off the surface at a medium rate. Water is perched above the fragipan at a depth of about 1.5 to 3 feet during December through April. The effective rooting depth is limited by the fragipan. The available water capacity is moderate or high. The shrink-swell potential is moderate.

Included with this soil in mapping are a few small areas of Lytle, Ruston, Smithdale, and Toula soils. Lytle and Ruston soils are on more convex ridgetops than the Tangi soil and do not have a fragipan. Lytle soils are also on side slopes. Smithdale soils have steeper slopes than the Tangi soil and do not have a fragipan. Toula soils are on ridgetops. They contain more silt and less sand in the fragipan than the Tangi soil. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland or pastureland. In a few areas, it is used as cropland or homesites.

This soil is well suited to use as woodland. It has few limitations for use and management. The potential for the production of pine trees is high (fig. 14). After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Logging should be done during the drier seasons to reduce soil compaction.

This soil is well suited to pasture. The main limitations are the hazard of erosion during the establishment period and low fertility. The main suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, ball clover, crimson clover, arrowleaf clover, and ryegrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Seedbed preparation should be on the contour or across the slope where practical to reduce erosion. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are low fertility, potentially toxic levels of exchangeable aluminum, and the moderate hazard of erosion. The main suitable crops are soybeans and corn. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Conservation practices, such as early fall seeding, conservation tillage, terraces, diversions, and grassed waterways (fig. 15) help to control erosion. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth. Crops respond well to fertilizer and lime, which help to increase soil fertility and reduce the levels of exchangeable aluminum.

This soil is moderately well suited to urban development. The main limitations are wetness, very slow or slow permeability, moderate shrink-swell potential, and low strength for roads. Seepage is a problem in some sanitary facilities, such as sewage lagoons. A seasonal high water table is perched above the fragipan, and drainage should be provided if buildings are constructed. Roads should be designed to offset the limited ability of the soil to support a load. Very slow or slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. Self-contained disposal units can be used to dispose of sewage properly. Preserving the existing plant cover during construction helps to control erosion. Establishing and maintaining plant cover can be achieved through proper fertilizing, seeding, mulching, and shaping of the slopes.

This soil is moderately well suited to recreational uses. Wetness and slow or very slow permeability are moderate limitations to using this soil as camp areas, picnic areas, and paths and trails. The slope and the hazard of erosion are severe limitations for playgrounds. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. Cuts and fills should be seeded or mulched as soon as possible.

This soil is well suited to use as habitat for woodland and openland wildlife, such as deer, squirrel, rabbit, turkey, quail, dove, and numerous nongame birds and animals. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Oak and other large mast-producing trees should be preserved where possible. Controlled burning can increase the amount of palatable browse for deer and seed-producing plants for quail and turkey.

This Tangi soil is in capability subclass IIIe. The woodland ordination symbol is 13A.

To—Toula silt loam, 1 to 3 percent slopes

This gently sloping, moderately well drained soil is on ridgetops on uplands. The areas of this soil range from about 20 to 300 acres.

Typically, the surface layer is dark grayish brown silt

Figure 15.—This grassed waterway helps to control erosion and gullying in this area of Tangi silt loam, 3 to 8 percent slopes.

loam about 4 inches thick. The subsoil to a depth of about 27 inches is light yellowish brown silt loam and yellowish brown silty clay loam. Below this, to a depth of about 50 inches, is a fragipan. It is yellowish brown silt loam. The next part of the subsoil to a depth of about 65 inches is yellowish brown, mottled clay loam.

This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to crops. Water and air move through the surface layer and upper part of the subsoil of this soil at a moderate rate and through the fragipan at a slow rate. Water runs off the surface at a medium rate. Water is perched above the fragipan at a depth of about 1.5 to 3 feet from December to April. The effective rooting depth is restricted by the fragipan. The available water capacity is moderate or high. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Bude and Calhoun soils. These soils are in lower positions than the Toula soil. Bude soils are somewhat poorly drained and have grayish mottles in the upper part of the subsoil. Calhoun soils are poorly drained and are gray throughout the profile. The included soils make up about 10 percent of the map unit.

This soil is used mainly as woodland or pastureland. In a few areas, it is used as cropland or homesites.

This soil is well suited to use as woodland. It has few limitations for use and management. However, competition from understory plants is moderate. The potential for the production of pine trees is high. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Logging should be done during the drier seasons to prevent soil compaction.

This soil is well suited to pasture. The main limitations are low fertility and the moderate hazard of erosion. Suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, ball clover, crimson clover, arrowleaf clover, and ryegrass. Erosion can be reduced if tillage is on the contour or across the slope where practical for seedbed preparation. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. The main limitations are low fertility, potentially toxic levels of aluminum, and the moderate hazard of erosion. The main crops are corn, grain sorghum, and vegetables. The plow layer can be worked throughout a wide range of moisture content. Conservation practices, such as early seeding, conservation tillage, and contour farming help to control erosion. This soil is friable and easy to keep in good tilth. Returning all crop residue to the soil and using conservation tillage reduces crusting of the surface and compaction of the soil. Using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility and tilth. Crops respond well to lime and fertilizer, which help to overcome the low fertility and high levels of exchangeable aluminum.

This soil is moderately well suited to urban development. The main limitations are low strength for local roads and streets, slow permeability, and wetness. A seasonal high water table is perched above the fragipan, and drainage should be provided if buildings are constructed. Slow permeability and a high water table increase the possibility for septic tank absorption fields to fail. Seepage is a problem in sewage lagoons. Roads should be designed to offset the limited ability of the soil to support a load. Preserving the existing plant cover during construction helps to control erosion. Excess water can be removed by shallow ditches and by providing the proper grade.

This soil is moderately well suited to recreational uses. Wetness and slow permeability are the main limitations. The slope is a moderate limitation for playgrounds. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. Good drainage improves this soil for most intensively used recreation areas, such as playgrounds and campsites.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Selectively harvesting to preserve oak and other mast-producing trees can improve the habitat for deer, squirrel, and turkey.

This Toula soil is in capability subclass IIe. The woodland ordination symbol is 13A.

Ts—Tunica-Sharkey complex, undulating

These undulating, poorly drained soils are on flood plains. They are on the natural levees of old distributary channels of the Mississippi River and are protected from flooding by earthen levees. The areas of this map unit range from 100 to more than 1,500 acres. They are about 60 percent Tunica soil and about 30 percent Sharkey soil. The Tunica soil is on low, parallel ridges, and the Sharkey soil is in swales between the ridges. The ridges are 3 to 8 feet high and 150 to 300 feet wide. The swales are about 75 to 300 feet wide. Slopes range from less than 1 percent in swales and from 1 to 3 percent on the sides of ridges. The soils of this map unit are so intricately intermingled that it is not practical to map them separately at the scale used. In places, the soil has slopes that range from 3 to 5 percent.

Typically, the Tunica soil has a surface layer of dark grayish brown clay about 6 inches thick. The subsoil to a depth of about 26 inches is gray, mottled clay in the upper part and grayish brown, mottled silty clay in the lower part. The substratum to a depth of about 60 inches is light brownish gray, mottled loam.

This Tunica soil has high fertility. Water and air move through this soil at a very slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from about 1.5 to 3 feet below the soil surface during January through April. The available water capacity is moderate or high. The shrink-swell potential is high.

Typically, the Sharkey soil has a surface layer of dark grayish brown clay about 7 inches thick. The subsoil to a depth of about 43 inches is gray, mottled clay. The substratum to a depth of about 60 inches is gray, mottled clay.

This Sharkey soil has high fertility. Water and air move through this soil at a very slow rate. Water runs off the surface at a very slow rate. A seasonal high water table ranges from the soil surface to a depth of about 2 feet below the surface. The available water capacity is moderate or high. The shrink-swell potential is very high.

Included with the Tunica and Sharkey soils in mapping are a few small areas of Commerce and Convent soils. These soils are in higher positions on the landscape than the Tunica and Sharkey soils and are loamy throughout the profile. The included soils make up about 10 percent of the map unit.

The Tunica and Sharkey soils are used mainly as pastureland. A small acreage is used as cropland or woodland.

These soils are moderately well suited to use as woodland. The main management concerns in producing and harvesting timber are a moderate or severe equipment use limitation and moderate seedling mortality caused by wetness. The potential for the production of hardwood trees is high. Conventional methods of harvesting timber can be used except during rainy periods, generally from December to April. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. Only trees that can tolerate seasonal wetness should be planted.

These soils are moderately well suited to pasture. Wetness is the main limitation. The main suitable pasture plants are common bermudagrass, ryegrass, and white clover. Where suitable outlets are available, excess surface water can be removed by shallow ditches. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition.

These soils are moderately well suited to cultivated crops. The main limitations are wetness and poor tilth. The main suitable crops are soybeans and grain sorghum. These soils are sticky when wet and hard when dry, and they become cloddy if tilled when too wet or too dry.

These soils are poorly suited to urban and recreational uses. The main limitations are wetness, very slow permeability, low strength for roads and streets, the clay texture, and high or very high shrink-swell potential. Unless internal drainage is improved, septic tank absorption fields will not function properly in these wet and very slowly permeable soils during rainy periods. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. Roads can be designed to compensate for the low capacity of the soils to support a load.

These soils are well suited to use as habitat for woodland and openland wildlife. Shallow ponds can be constructed to provide open water areas for waterfowl and furbearers. Small clear-cuts in irregular shapes increase the amount of palatable browse for deer and seed-producing plants for quail and turkey. Selectively harvesting to preserve oak and other large mast-producing trees can improve the habitat for deer, squirrel, and turkey. In pastures, grasses and legumes that have different maturity dates can be planted in separate fields to spread the harvesting season.

The Tunica and Sharkey soils are in capability subclass IIIw. The woodland ordination symbol is 8W for the Tunica soil and 6W for the Sharkey soil.

TU—Tunica and Sharkey soils, undulating, frequently flooded

These undulating, poorly drained soils are on the flood plains of the Mississippi River. The Tunica soil is on low ridges, and the Sharkey soil is in swales between ridges. These soils are subject to frequent flooding for brief to very long periods. The mapped areas of these soils range from about 200 to several thousand acres. They are about 60 percent Tunica soil and about 30 percent Sharkey soil. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the expected use of the soils. Slopes range from less than 1 percent in swales to 3 percent on ridges.

Typically, the Tunica soil has a surface layer of dark grayish brown clay about 11 inches thick. The subsoil to a depth of about 33 inches is gray, mottled clay in the upper part and grayish brown, mottled silty clay in the lower part. The substratum to a depth of about 60 inches is light brownish gray, mottled loam.

This Tunica soil has high fertility. Water and air move through this soil at a very slow rate. Water runs off the surface at a slow rate. A seasonal high water table ranges from about 1.5 to 3 feet below the soil surface from January to April. The available water capacity is moderate or high. The shrink-swell potential is high.

Typically, the Sharkey soil has a surface layer of very dark gray clay about 6 inches thick. The subsoil to a depth of about 36 inches is dark gray, mottled clay in the upper part and gray, mottled clay in the lower part. The substratum to a depth of about 60 inches is gray, mottled clay.

This Sharkey soil has high fertility. Water and air move through this soil at a very slow rate. Water runs off the surface at a very slow rate. A seasonal high water table ranges from the soil surface to about 2 feet below the surface during December through April. Flooding occurs for brief to very long periods mainly from December to July. During dry periods, this soil shrinks and cracks to a depth of 20 inches or more. The available water capacity is moderate or high. The shrink-swell potential is very high.

Included with the Tunica and Sharkey soils in mapping are a few small areas of Commerce, Convent, Robinsonville, and Fausse soils. Commerce, Convent, and Robinsonville soils are in higher positions than the Tunica and Sharkey soils and are loamy throughout the profile. Fausse soils are in swamps at a lower elevation than the

Tunica and Sharkey soils and are very poorly drained. The included soils make up about 10 percent of the map unit.

The Tunica and Sharkey soils are used mainly as woodland and pastureland. A small acreage is used as intensive recreation areas.

These soils are moderately well suited to use as woodland. The main concerns in producing and harvesting timber are the hazard of flooding and severe seedling mortality and equipment use limitation caused by wetness. The potential for the production of hardwood trees is moderately high. After harvesting, reforestation can be carefully managed to reduce competition from undesirable understory plants. If site preparation is not adequate, competition from undesirable plants can prevent or prolong natural or artificial reestablishment of trees. Trees that can tolerate seasonal wetness, such as baldcypress, should be planted. Because the clayey soil is sticky when wet, most planting and harvesting equipment can be used only during dry periods.

These soils are poorly suited to pasture. Frequent flooding prevents intensive management. Wetness limits the choice of plants and the period of grazing. The main suitable pasture plant is common bermudagrass. Proper stocking, pasture rotation, and restricted grazing during wet periods help to keep the pasture and soil in good condition. During flood periods, cattle can be moved to protected areas or to pastures at a higher elevation.

These soils are not suited to cultivated crops, urban uses, and intensive recreational uses. Wetness and the hazard of flooding are too severe for these uses. The soils can be protected from flooding only by constructing an extensive system of levees and water pumps.

These soils are well suited to use as habitat for wetland wildlife and moderately well suited to use as habitat for woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by propagating desirable plants. Shallow ponds can be constructed to provide open water areas for waterfowl and furbearers.

The Tunica and Sharkey soils are in capability subclass Vw. The woodland ordination symbol is 6W for the Tunica soil and 4W for the Sharkey soil.

UB—Urban land

This map unit consists of areas where more than 85 percent of the surface is covered by asphalt, concrete, buildings, or other impervious surfaces. Examples are business centers, parking lots, industrial sites, grain elevators, and a nuclear power plant along the Mississippi River industrial corridor. The mapped areas of Urban land range from 100 to 500 acres.

Included with Urban land in mapping are areas of lawns on miscellaneous, artificial fill. In some areas, several feet of this fill have been placed over the original soil surface. The included areas make up about 15 percent of the map unit.

Examination and identification of soils or soil material in this map unit during mapping was impractical. Careful onsite investigation is needed to determine the potential and limitations for any proposed use.

Urban land is not assigned to a capability subclass nor woodland ordination group.

We—Weyanoke silt, 1 to 3 percent slopes

This gently sloping, well drained soil is on convex ridges on local stream terraces. It is subject to rare flooding. The areas of this soil range from about 20 to 500 acres.

Typically, the surface layer is brown silt about 3 inches thick. The subsoil to a depth of about 27 inches is yellowish brown silt in the upper part and dark yellowish brown silt in the lower part. The substratum to a depth of about 60 inches is yellowish brown, mottled silt loam.

This soil has medium fertility. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. Flooding is rare, but can occur during unusually wet periods. A seasonal high water table is at a depth of 2.5 to 4 feet below the surface during January through April. The available water capacity is high or very high. The shrink-swell potential is low.

Included with this soil in mapping are a few small areas of Bigbee, Feliciana, Loring, and Morganfield soils. Bigbee soils are on flood plains and are sandy throughout the profile. Feliciana and Loring soils are on uplands. Feliciana soils contain more clay in the upper part of the subsoil than the Weyanoke soil. Loring soils have a fragipan. Morganfield soils are in lower positions than the Weyanoke soil and do not have a distinct subsoil. Also included are a few small areas of the Weyanoke soil at Louisiana State Penitentiary that are not subject to rare flooding. The included soils make up about 15 percent of the map unit.

This soil is used about equally as pastureland, woodland, and cropland. In a few areas, it is used as homesites.

This soil is well suited to use as woodland. The potential for the production of pine trees is high. Competing plants can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is well suited to cultivated crops. The main limitation is the moderate hazard of erosion, and medium fertility is a minor limitation. Corn is the main crop; but truck crops, soybeans, cotton, and sweet potatoes are also suitable crops. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Plow pans develop easily, but they can be broken by deep plowing or chiseling. Crop residue left on or near the surface reduces runoff and helps to maintain soil tilth and organic matter content. Conservation practices, such as conservation tillage, diversions, and grassed waterways help to control erosion. Drop structures can be installed in grassed waterways to control gullying. Most crops respond well to fertilizer. Lime generally is needed.

This soil is well suited to pasture. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, and ball clover. Erosion can be reduced by maintaining a good plant cover and by tilling on the contour or across the slope where practical for seedbed preparation. Proper stocking and pasture rotation help to keep the pasture in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is poorly suited to urban development and homesites. It has severe limitations for building sites, local roads and streets, and most sanitary facilities. Flooding is a hazard. Drainage is needed if roads and building foundations are constructed. Excess water on the surface can be removed by shallow ditches and by providing the proper grade. Roads and streets should be located above the expected flood level. Flooding can be controlled, but only by major flood-control structures, such as levees. Moderate permeability and a high water table increase the possibility for septic tank absorption fields to fail. Self-contained disposal units can be used to dispose of sewage properly.

This soil is moderately well suited to recreational uses. Erosion can be a hazard for playgrounds where ground cover is absent. Flooding is a hazard for campsites. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover. The cover can be maintained by fertilizing and by controlling traffic. Cuts and fills can be seeded or mulched. Flooding can be controlled by constructing levees or diversions and installing water pumps.

This soil is well suited to use as habitat for openland and woodland wildlife. Habitat for wildlife can be improved by maintaining existing plant cover or by propagating desirable plants.

This Weyanoke soil is in capability subclass IIe. The woodland ordination symbol is 10A.

Prime Farmland

In this section, prime farmland is defined, and the soils in East and West Feliciana Parishes that are considered prime farmland are listed.

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. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. The moisture supply must be adequate, and the growing season must be sufficiently long. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources. Farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or for other purposes. They are used for food or fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Prime farmland soils usually receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not frequently flooded during the growing season. The slope ranges mainly from 0 to 5 percent.

The following map units are considered prime farmland in East and West Feliciana Parishes. The location of each map unit is shown on the detailed soil maps at the back of this publication. The extent of each unit is given in table 4. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

Some soils that have a high water table and all soils that are frequently flooded during the growing season qualify as prime farmland only in areas where these limitations have been overcome by drainage measures or flood control. The following list contains only those soils that have few limitations and need no additional improvements to qualify as prime farmland.

The soils identified as prime farmland in East and West Feliciana Parishes are:

Bd	Bude silt loam, 0 to 2 percent slopes
Ca	Calhoun silt loam
Ce	Commerce silt loam
CM	Commerce soils, gently undulating, occasionally flooded
Co	Convent silt loam
Dx	Dexter silt loam, 1 to 3 percent slopes
Fb	Feliciana silt loam, 0 to 1 percent slopes
Fe	Feliciana silt loam, 1 to 3 percent slopes
Fk	Fluker silt loam, 0 to 2 percent slopes
Ke	Kenefick fine sandy loam, 1 to 3 percent slopes
Lo	Loring silt loam, 1 to 3 percent slopes
Lt	Lytle silt loam, 1 to 3 percent slopes
Oa	Olivier silt loam, 0 to 1 percent slopes
Ob	Olivier silt loam, 1 to 3 percent slopes
RC	Robinsonville and Convent soils, occasionally flooded
Rs	Ruston sandy loam, 1 to 5 percent slopes
Sa	Sharkey clay
Ta	Tangi silt loam, 1 to 3 percent slopes
To	Toula silt loam, 1 to 3 percent slopes
Ts	Tunica-Sharkey complex, undulating
We	Weyanoke silt, 1 to 3 percent slopes

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 woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for 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 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.

Crops and Pasture

Charles Guillory, conservation agronomist, Natural Resources Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed for each soil, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 1982, about 183,000 acres in East and West Feliciana Parishes was farmland, according to the United States Census of Agriculture. About 135,000 acres was used for pasture or hay, and approximately 48,000 acres was used for crops, mainly soybeans, wheat, and corn.

Differences in crop suitability and management needs result from differences in soil characteristics, such as fertility levels, erodibility, organic matter content, availability of water for plants, drainage, and the hazard of flooding. Cropping systems and soil tillage are an important part of management. Each farm has a unique soil pattern; therefore, each has unique management problems. Some principles of farm management, however, apply only to specific soils and certain crops. This section presents the general principles of management that can be applied widely to the soils of East and West Feliciana Parishes.

Pasture and hayland. Perennial grasses or legumes or mixtures of these are grown for pasture and hay. The mixtures generally consist of either a summer or a winter perennial grass and a suitable legume. Also, many farmers seed small grain or ryegrass in the fall for winter and spring forage. Excess grass in summer is harvested as hay for use in winter.

Common bermudagrass, improved bermudagrass, and Pensacola bahiagrass are the most commonly grown summer perennials. Improved bermudagrass and Pensacola bahiagrass produce good quality forage. Tall fescue, the main winter perennial grass, grows well only on soils that have a favorable moisture content. All of these grasses respond well to fertilizers, particularly nitrogen.

White clover, crimson clover, vetch, and southern winter peas are the most commonly grown legumes. All of these respond well to lime, particularly on acid soils.

Proper grazing is essential for high quality forage, stand survival, and erosion control. Brush and weed control, fertilizer, lime, and renovation of the pasture are also important.

Proper grazing includes withholding livestock until the plants have a good start in spring, controlling grazing height, rotation grazing, grazing at the best time, and periodic resting. Proper additions of fertilizer help to maintain an adequate supply of plant nutrients. Clipping helps to distribute grazing and stimulate even regrowth. In areas where the stand is thin, mowing or spraying to control weeds increases the amount of moisture and nutrients available to the desirable pasture plants.

Grazing the understory native plants in woodland provides additional forage. About 10,000 acres of woodland is used for grazing in East and West Feliciana Parishes. Forage volume varies with the woodland site, the condition of the native forage, and the density of the timber stand. Although most areas of woodland is managed mainly for timber, substantial volumes of forage can be obtained from these areas if properly managed. Stocking rates and grazing periods need to be carefully managed for optimum forage production and to maintain an adequate cover of understory plants to control erosion. Additional information on the production of forage in woodland is in the section, "Woodland Management and Productivity."

Fertilizer and lime. The soils in East and West Feliciana Parishes range from extremely acid to moderately alkaline in the upper 20 inches. Most soils used for crops are low in organic matter content and available nitrogen. They generally need lime and a complete fertilizer for crops and pasture plants. Many of the soils contain high levels of exchangeable aluminum and manganese that are potentially toxic to some plants. Additions of lime help to counteract the excessive levels of aluminum and manganese in these soils. The amount of fertilizer and lime needed depends on the kind of crop, on past cropping history, on the level of yield desired, and on the kind of soil. The amount should be determined on the basis of soil test results. Information and instructions on collecting and testing soil samples can be obtained from the Cooperative Extension Service.

Organic matter content. Organic matter is an important source of nitrogen for crops. It also increases the rate of water intake, reduces surface crusting, and improves tilth. In East and West Feliciana Parishes, most soils used for crops, especially those that have a silt loam surface layer, are low in organic matter content. The level of organic matter content can be maintained by growing crops that produce an extensive root system and an abundance of foliage, by leaving plant residue on the surface, by adding barnyard manure, and by growing perennial grasses and legumes in rotation with other crops.

Soil tillage. Because excessive tillage destroys soil structure, soils should be tilled only for seedbed preparation and weed control weeds. Conservation tillage helps to maintain soil tilth. A compacted layer, generally known as a traffic pan or plow pan, sometimes develop just below the plow layer in loamy soils. This condition can be avoided by not plowing when the soil is wet or by varying the depth of plowing. If a plow pan develops, it can be broken up by subsoiling or chiseling. Tillage implements that stir the surface and leave the crop residue in place protect the soil from beating rains, thereby helping to control erosion, reduce runoff and surface crusting, and increase infiltration.

Drainage and flood control. Some of the soils in East and West Feliciana Parishes need surface drainage to make them more suitable for crops and use as pasture. A properly designed system of field ditches can remove excess water from seasonally wet soils, such as Bude, Calhoun, Deerford, Fluker, Tunica, Olivier, and Sharkey soils. Soils on uplands and terraces are drained by a gravity drainage system consisting of row drains and field drains. Soils on bottomlands are more commonly drained by a combination of land smoothing and surface drainage ditches.

Control of erosion. Soil erosion is a major hazard on many of the soils in East and West Feliciana Parishes. It is especially a serious problem on soils on terraces and uplands. Sloping soils, such as Loring and Ruston soils, are highly susceptible to erosion when left without plant cover for extended periods. If the surface layer of the soil is lost through erosion, most of the available plant nutrients and organic matter also are lost. Soils that have a fragipan, such as Bude, Fluker, Loring, Olivier, Tangi, and Toula soils, especially need protection against erosion. Soil erosion also results in sedimentation of drainage systems and pollution of streams by sediment, nutrients, and pesticides.

Sheet, rill, and gully erosion can be reduced by using cropping systems in which a plant cover is maintained on the soil for extended periods. Returning plant residue to the soil surface, contour farming, stripcropping, no-till farming or minimum tillage, and establishing terraces and grassed waterways reduce runoff and erosion. Disturbed areas around construction sites should be seeded and mulched immediately after construction. Installing water-control structures that drop water to different levels in drainageways can prevent gullying.

Cropping system. A good cropping system includes a legume for nitrogen, a cultivated crop to aid in weed control, a deep-rooted crop to utilize subsoil fertility and maintain subsoil permeability, and a close-growing crop to help maintain the content of organic matter. The sequence of crops should keep the soil covered as much of the year as possible.

A suitable cropping system varies according to the needs of the farmer and the characteristics of the soil. Producers of livestock, for example, generally use cropping systems that have higher percentages of pasture and annual forages than the cropping systems used on cash-crop farms. In East and West Feliciana Parishes, a variety of cropping systems are used, depending on the main crop grown. Soybeans are grown continuously or in rotation with corn or grain sorghum. Grass or legume cover crops are grown during the fall and winter. Double cropping of wheat and soybeans is common in some places.

Additional information on erosion control, cropping systems, and drainage practices can be obtained from the local office of the Natural Resources Conservation Service, the Cooperative Extension Service, or the Louisiana Agricultural Experiment Station.

Yields per Acre

The average yields per acre that can be expected of the principal pasture grasses under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby parishes and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various grasses depends on the kind of soil and the grass. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding grass varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each grass; effective use of barnyard manure and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal grasses. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops and grasses other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops and grasses is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those grasses and crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode, but they have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, or *s*, to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and *s* shows that the soil is limited mainly because it is droughty.

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation. Class V contains only the subclass indicated by *w*.

The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Woodland Management and Productivity

Carl V. Thompson, Jr., state forester, Natural Resources Conservation Service, helped prepare this section.

This section has information on the relation between trees and their environment, particularly trees and the soils in which they grow. It includes information on the kind, amount, and condition of woodland resources in East and West Feliciana Parishes as well as soil interpretations that can be used in planning.

Soils vary in their ability to produce trees. Depth, fertility, texture, and the available water capacity influence tree growth. Climate determines the kinds of trees that can grow on a site. Available water capacity and thickness of the root zone are major influences on tree growth.

Soil directly influences the growth, management, harvesting, and multiple uses of forests. Soil is the medium in which a tree is anchored and from which it draws its nutrients and moisture. Soil characteristics, such as chemical composition, texture, structure, depth, and slope position, affect tree growth, seedling survival, species adaptability, and equipment limitations.

The ability of a soil to supply moisture and nutrients to trees is strongly related to soil texture, structure, and depth. Generally, sandy soils are less fertile and lower in available water capacity than clayey soils. However, aeration is often impeded in clayey soils, particularly under wet conditions.

These soil characteristics, in combination, largely determine the forest stand species composition and influence decisions of management and use. Sweetgum, for example, is tolerant of many soils and sites but grows best on the rich, moist, alluvial loamy soils on bottomlands. The use of heavy logging and site preparation equipment is more restricted on clayey soils than on better drained sandy or loamy soils.

Woodland Resources

The topography and vegetation in East and West Feliciana Parishes vary from the sloping piney woods of the uplands and terraces to the hardwood forests in the stream bottoms and along the Mississippi River. The dominant forest species are longleaf pine, slash pine, and loblolly pine on the higher sites; sweetgum, red oak, white oak, elm, pecan, green ash, willow, sycamore, and cottonwood in the stream and river bottoms; and baldcypress and tupelo gum in the swamps. The soils of the Tunica Hills support stands of hardwood trees, such as Shumard oak, cherrybark oak, southern red oak, water oak, and white oak, green ash, American sycamore, sweetgum, and yellow-poplar. Loblolly pine is also common in the Tunica Hills.

East and West Feliciana Parishes were once dominantly a vast virgin forest of pine. No virgin forests are left. Most were cut during the "cut out-get out" period around the turn of the century. The timber barons of that time stripped both the upland pine and low-lying baldcypress-tupelo gum forests of commercial trees. No attempts at artificial regeneration were made at the time, and the second growth forests were strictly a product of nature. This second growth forest was largely unmanaged and subject to periodic wildfires and harvests with little or no selective cutting or regeneration until the late 1940's and early 1950's. Then, a series of events took place that set the stage for forest management and reforestation. Effective fire protection was provided by the Louisiana Office of Forestry (then known as the Louisiana Forestry Commission); the Louisiana Office of Forestry increased operations of their pine seedling nurseries, making pine seedlings more readily available for planting the cut-over land; timber and land values began to increase, providing an incentive to landowners to bring their property into production. Today, most of the forest land in East and West Feliciana Parishes is once again productively growing commercial timber, although a substantial portion is now specifically in urban land, pastureland, cropland, and other non-forest uses.

East Feliciana Parish has about 172,000 acres of commercial woodland representing about 59 percent of the total land area *(45)*. West Feliciana Parish has about 158,600 acres of commercial woodland representing about 58 percent of the total land area. Commercial woodland is defined as that producing or capable of producing crops of industrial wood and not withdrawn from timber use. In East Feliciana Parish, commercial woodland acreage increased by 1,800 acres between 1964 and 1974 and by 9,300 acres between 1974 and 1984. This increase in forested acres is largely the result of landowners converting idle land and pastureland back to woodland. In West Feliciana Parish, the trend is in the opposite direction. The commercial woodland acreage decreased by about 15,400 acres between 1964 and 1974 and by about 5,200 acres between 1974 and 1984. Most of the cleared land was converted to cropland and pastureland. Other uses are urban land and transmission and transportation corridors. The trends in both parishes are expected to continue.

About 44 percent of the forest land in East Feliciana Parish is owned by farmers, 48 percent is in miscellaneous private ownership, 4 percent is in corporate holdings, and 4 percent belongs to forest industry. About 23 percent of the forest land in West Feliciana Parish is owned by farmers, 46 percent is in miscellaneous private ownership, 8 percent is in corporate holdings, 19 percent belongs to forest industry, and 4 percent belongs to the public.

East Feliciana Parish is entirely within the Southern Mississippi Valley Silty Uplands Major Land Resource Area (MLRA). West Feliciana Parish is in both the Southern

Mississippi Valley Silty Uplands MLRA and the Southern Mississippi Valley Alluvium MLRA.

The Southern Mississippi Valley Silty Uplands MLRA supports substantial acreages of southern yellow pine and mixed pine-hardwood forests. The dominant trees are loblolly pine, slash pine, longleaf pine, sweetgum, water oak, southern red oak, white oak, American sycamore, and magnolia on the higher, well drained soils; and eastern cottonwood, green ash, white oak, cherrybark oak, Nuttall oak, water oak, willow oak, American sycamore, and tupelo gum on the lower, poorly drained soils.

The dominant trees in the Southern Mississippi Valley Alluvium MLRA are green ash, eastern cottonwood, elm, and American sycamore on well drained soils; and green ash, elm, tupelo gum, baldcypress, willow, water oak, pecan, hackberry, willow oak, and Drummond red maple on poorly drained soils.

Commercial woodland in the two parishes may be further divided into forest types. Types can be based on tree species, site quality, or age. As used in this survey, forest types are stands of trees of similar character, composed of the same species, and growing under the same ecological and biological conditions. The forest types are named for the dominant trees.

The *oak-gum-cypress* forest type makes up 12 percent of the forest land in East Feliciana Parish and 46 percent in West Feliciana Parish. This type is composed of bottomland forests of tupelo gum, blackgum, sweetgum, oak, and baldcypress, singly or in combination. Cottonwood, black willow, ash, hackberry, maple, and elm are associated with this forest type.

The *loblolly-shortleaf pine* forest type makes up 44 percent of the forest land in East Feliciana Parish and 11 percent in West Feliciana Parish. Loblolly pine generally is dominant except on drier sites. Scattered hardwoods, such as sweetgum, blackgum, southern red oak, post oak, white oak, mockernut hickory, and pignut hickory, can be mixed with pines on well drained soils. On the more moist sites, sweetgum, red maple, water oak, and willow oak can be mixed with pines. Green ash and American beech are associated with this forest type in fertile, well drained coves and along stream bottoms.

The *oak-hickory* forest type makes up 24 percent of the forest land in East Feliciana Parish and 35 percent in West Feliciana Parish. Upland oaks or hickories, singly or in combination, generally make up most of the stand. Where pines make up 25 to 50 percent, the stand is classified as oak-pine. Elm and maple are commonly associated with this forest type.

The *oak-pine* forest type makes up about 20 percent of the forest land in East Feliciana Parish and 4 percent in West Feliciana Parish. About 50 to 75 percent of the stand is hardwoods, generally upland oaks, and 25 to 50 percent of the stand is softwoods that do not include baldcypress. The species that make up the oak-pine forest type are primarily determined by the soil, slope, and aspect. On the higher, drier sites, the hardwood components tend to be upland oaks, such as post oak, southern red oak, and blackjack oak. On the more moist and more fertile sites, white oak, southern red oak, and black oak are dominant. Blackgum, winged elm, red maple, and various hickories are associated with the oak-pine forest type on both of these broad sites.

The *elm-oak-cottonwood* forest type occurs only in West Feliciana Parish and makes up 4 percent of the forest land. American elm, green ash, and eastern cottonwood make up the stand. Water hickory, Nuttall oak, willow oak, water oak, overcup oak, sweetgum, box-elder, black willow, and sandbar willow are associated with this forest type.

The forest land in East Feliciana Parish is 54 percent pines and 46 percent bottomland hardwoods. In West Feliciana Parish, the forest land is 13 percent pines and 87 percent bottomland hardwoods.

In East Feliciana Parish, the volume of growing stock is about 69 percent pines and 31 percent hardwoods. About 80 percent of the forest acreage is in sawtimber, 4 percent is in pole timber, 12 percent is saplings and seedlings, and about 4 percent is classified as "non-stocked." About 20 percent of the forest land produces 165 cubic feet or more of wood per acre per year, about 40 percent produces 120 to 165 cubic feet per acre, 32 percent produces 85 to 120 cubic feet per acre, and 8 percent produces 50 to 85 cubic feet per acre.

In West Feliciana Parish, the volume of growing stock is about 19 percent pines, 66 percent hardwoods, and 15 percent other. About 81 percent of the forest acreage is in sawtimber, 11 percent is in pole timber, 4 percent is saplings and seedlings, and about 4 percent is classified as "non-stocked." About 35 percent of the forest land produces 165 cubic feet or more of wood per acre per year, about 19 percent produces 120 to 165 cubic feet per acre, 31 percent produces 85 to 120 cubic feet per acre, and 15 percent produces 50 to 85 cubic feet per acre.

Several major wood-processing plants are in East and West Feliciana Parishes. Consequently, timber production is important to the economy in the parishes. Most of the upland pine sites, in tracts of 500 acres or less, are privately owned. Most of these privately-owned tracts and most of the bottomland tracts are producing well below potential. These tracts would benefit if stands were improved by thinning out mature trees and undesirable species. Protection from overgrazing, fire, insects, and diseases; tree planting; and timber stand improvement are needed to improve stands.

The Natural Resources Conservation Service, the Louisiana Office of Forestry, and the Louisiana Cooperative Extension Service can help to determine specific woodland management needs.

Environmental Impact

Woodland is valuable for wildlife habitat, recreation, natural beauty, and conservation of soil and water. The commercial forest land of East and West Feliciana Parishes provides food and shelter for wildlife and offers opportunity for sport and recreation to many users annually. Hunting and fishing clubs in the parishes lease or otherwise use the forest land. Forest land provides watershed protection, helps to control soil erosion and reduce sedimentation, and enhances the quality and value of water resources.

Trees can be planted to screen distracting views of dumps and other unsightly areas, muffle the sound of traffic, reduce the velocity of winds, and lend beauty to the landscape. They produce fruits and nuts for use by people as well as wildlife. Trees and forests help to filter out airborne dust and other impurities, convert carbon dioxide into life-giving oxygen, and provide shade from the sun's hot rays.

Production of Forage in Woodland

The kind and amount of understory vegetation that can be produced in an area are related to the soils, climate, and amount of tree overstory. In many areas of pine woodland, cattle grazing can be a compatible secondary use. Grazing is not recommended on hardwood woodland. Grasses, legumes, forbs, and many of the woody browse species in the understory can be grazed, but the grazing should be managed so that it supplements the woodland enterprise without damaging the wood crop. In most areas of pine woodland, grazing is beneficial to the woodland program because it reduces the accumulation of heavy "rough", thus reducing the hazard of wildfires. Grazing also helps to remove undesirable woody plants.

The success of a combined woodland livestock program depends primarily on the degree and time of grazing of the forage plants. Intensity of grazing should maintain adequate plant cover for soil protection and maintain or improve the quantity and quality of trees and forage vegetation.

Forage production varies depending to the type of woodland and the amount of sunlight that reaches the understory vegetation during the growing season. Soils that have about the same potential for producing trees also have similar potential for producing about the same kind and amount of understory vegetation. The plant community on these soils will reproduce itself as long as the environment does not change.

Research has proven that a close correlation exists between the total potential yield of grasses, legumes, and forbs in similar soils and the amount of sunlight reaching the ground at midday in the forest. Herbage production continues to decline as the forest canopy becomes denser.

One of the main objectives in good woodland grazing management is to keep the woodland forage in excellent or good condition. If this is done, water is conserved, yields are improved, and the soils are protected.

Woodland Production

Table 6 can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to applications of fertilizer than others, and some are more susceptible to landslides and erosion after roads are built and timber is harvested. Some soils require special reforestation efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber includes information about productivity, limitations in harvesting timber, and management concerns in producing timber. The table summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight, moderate,* and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

The table lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates the potential productivity of a soil for the indicator species in cubic meters per hectare. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation affecting use and management. The letter *R* indicates a soil that has a significant limitation because of steepness of slope. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *S* indicates a dry, sandy soil. The letter *A* indicates a soil having no significant limitations that affect forest use and management. If a soil has more than one limitation, the priority is as follows: R, W, and S.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation or harvesting activities expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions and *moderate* if erosion-control measures are needed for particular silvicultural activities. A moderate rating indicates the need for construction of higher standard roads, additional maintenance of roads, additional care in planning harvesting and reforestation activities, and the use of special equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope, wetness, and susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. The rating is *slight* if equipment use is restricted by wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are so steep that wheeled equipment cannot be operated safely across the slope, if wetness restricts equipment use from 2 to 6 months per year, or if special equipment is needed to prevent or minimize compaction. The rating is *severe* if wetness restricts equipment use for more than 6 months per year or if special equipment is needed to prevent or minimize compaction. Ratings of moderate or severe indicate a need to choose the best suited equipment and to carefully plan the timing of harvesting and other management activities.

Ratings of *seedling mortality* refer to the probability of the death of naturally occurring or properly planted seedlings of good stock in periods of normal rainfall, as influenced by kinds of soil or topographic features. Seedling mortality is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the periods when the water table is high, and rooting depth. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of moderate or severe indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing a surface drainage system, and providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is moderate or severe.

Ratings of *plant competition* indicate the likelihood of the growth or invasion of undesirable plants. Plant competition is more severe on the more productive soils, on poorly drained soils, and on soils having a restricted root zone that holds moisture. The risk is *slight* if competition from undesirable plants hinders adequate natural or artificial reforestation but does not necessitate intensive site preparation and maintenance. The risk is *moderate* if competition from undesirable plants hinders natural or artificial reforestation to the extent that intensive site preparation and maintenance are needed. The risk is *severe* if competition from undesirable plants prevents adequate natural or artificial reforestation unless the site is intensively prepared and maintained. A moderate or severe rating indicates the need for site preparation to ensure the development of an adequately stocked stand. Managers must plan site preparation measures to ensure reforestation without delays.

The *potential productivity* of *common trees* on a soil is expressed as a *site index*. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate. The first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that dominant and codominant trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year calculated at the age of culmination of mean annual increment. Cubic meters per hectare can be converted to cubic feet per acre by multiplying by 14.3. It can be converted to board feet by multiplying by a factor of about 71. For example, a productivity class of 8 means the soil can be expected to produce 114 cubic feet per acre per year at the point where mean annual increment culminates, or about 568 board feet per acre per year.

Trees to plant are those that are used for reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and personal preference are three factors among many that can influence the choice of trees for use in reforestation.

Recreation

In table 7, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings 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 are also important. Soils 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.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 10 and interpretations for dwellings without basements and for local roads and streets in table 9.

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 best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface absorbs rainfall readily but remains firm and is not dusty when dry. Strong slopes can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is firm after rains and is not dusty when dry.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Richard W. Simmering, state biologist, Natural Resources Conservation Service, helped prepare this section.

East and West Feliciana Parishes have a variety of habitat which supports diverse populations of wildlife. About 84 percent of the two parishes is made up of very gently sloping to steeply sloping uplands that are dissected by numerous streams with narrow flood plains. The remaining 16 percent of the survey area is level to undulating Mississippi River and Red River alluvial bottomlands. These bottomlands are along the western boundary of West Feliciana Parish.

The uplands and terraces are managed mainly as forest land and pastureland. The forests are mainly pine or a mixture of pine and hardwood trees. Upland creek bottoms are dominated by hardwood trees. Trees favored by wildlife include loblolly pine, water oak, southern red oak, white oak, and willow oak.

The interspersion of open pasture, pine woodland, and stream bottoms of hardwoods has provided excellent habitat for many upland wildlife species. Moderate to high populations of game species, such as white-tailed deer, gray and fox squirrels, bobwhite quail, and eastern cottontail rabbit, are in these areas. Both East and West Feliciana Parishes have abundant numbers of wild turkey. Dense woody vegetation provides good quality wintering habitat for migratory woodcock.

Proper silvicultural and wildlife management practices are essential to maintain or improve biological productivity of habitat. Prescribed burning in pine forests, establishing food plots, preserving hardwood trees, and periodically thinning tree stands can improve habitat for wildlife. Proper pasture and hayland management will also do much to enhance wildlife food and cover in the upland areas.

Most of the hardwood forests on the bottomlands of the Mississippi River are unprotected and subject to frequent backwater flooding. About 18,000 acres of these bottomlands that are owned by the Louisiana State Penitentiary have been cleared and converted to cropland. Most of this cropland has been leveled, and pumps have been installed for flood protection.

All of the bottomland hardwood forests in the survey area are used as habitat for wildlife and for timber production. Bottomland hardwoods are extremely productive biologically. This habitat supports high populations of furbearers, such as otter, mink, bobcat, and raccoon; game animals, such as white-tailed deer, eastern wild turkey, and swamp rabbit; and many water birds, amphibians, and reptiles including the American alligator. Flooded hardwood forests are valuable as wintering habitat for migratory waterfowl. The permanently or semi-permanently flooded swamps also provide excellent nesting habitat for wood duck populations. The main hardwood trees utilized by wildlife include willow oak, Nuttall oak, sweet pecan, green ash, overcup oak, baldcypress, and water tupelo.

Bottomland hardwoods can be managed for either upland or wetland species of wildlife. This habitat can be improved by selectively thinning to remove undesirable tree species and promote understory growth, planting food plots, controlling livestock grazing, and constructing green tree reservoirs.

Agricultural fields on these bottomlands generally support low populations of wildlife because of a shortage of food and cover; however, these fields provide excellent habitat for mourning doves, especially where crop residue is left and waste grain is available for food. Crops also supplement the natural food supplies of other wildlife species throughout the year. Seeds and foliage of soybeans, wheat, corn, rice, and grain sorghum are consumed by many birds and animals, such as white-tailed deer, wild turkey, and bobwhite quail.

Conservation practices, such as crop residue management, no-till, cover crops, and critical area planting also benefit wildlife. Artificial flooding of grain residue is an excellent method of enhancing habitat for migratory waterfowl.

Numerous streams, rivers, and farm ponds support viable fishery resources in the survey area (fig. 16). The Mississippi River, Amite River, Comite River, Thompson Creek, and Bayou Sara have a variety of game fish including largemouth bass, spotted bass, bluegill, channel and blue catfish, and white and black crappie. Many of the farm ponds are stocked with largemouth bass, bluegill and redear sunfish, and channel catfish.

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

Figure 16.—Thompson Creek is a popular area for fishing and other recreation because of its scenic quality. The trees are on Ouachita, Ochlockonee, and Guyton soils, frequently flooded.

maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 8, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, rice, and grain sorghum.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, bermudagrass, bahiagrass, clover, and vetch.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, paspalum, wooly croton, and uniola.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, sugarberry, sweetgum, persimmon, hawthorn, dogwood, hickory, blackberry, and huckleberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are autumn-olive and blueberry.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, cedar, and baldcypress.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, and soil moisture. Examples of shrubs are American beautyberry, American elder, waxmyrtle, and sumac.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, and slope. Examples of wetland plants are smartweed, wild millet, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are wetness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and coyote.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, nutria, mink, otter, and beaver.

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 estimated data and test data in the "Soil Properties" section.

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 within a depth of 5 or 6 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 grain-size distribution, liquid limit, plasticity index, soil reaction, soil wetness, depth to a seasonal high water table, 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 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

Table 9 shows the degree and kind of soil limitations that affect shallow excavations, dwellings without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to a very firm, dense layer; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. Depth to a high water table and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

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 stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to a high water table, flooding, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, depth to a high water table, the available water capacity in the upper 40 inches, and the content of sodium affect plant growth. Flooding, wetness, slope, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 10 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

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 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a high water table, and flooding affect absorption of the effluent.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel are less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

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. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, flooding, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive 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 can cause construction problems, and organic matter can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the 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.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a water table, slope, and flooding affect both types of landfill. Texture, highly organic layers, soil reaction, and content of sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

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.

Soil texture, wetness, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 11 gives information about the soils as a source of roadfill, sand, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

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 soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by a high 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 engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand. They have at least 5 feet of suitable material, a low shrink-swell potential, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential or slopes of 15 to 25 percent. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand is a natural aggregate suitable for commercial use with a minimum of processing. Sand is used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand are gradation of grain sizes (as indicated by the engineering classification of the soil) and the thickness of suitable material. Acidity and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or a layer of sand that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source.

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.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They have slopes of less than 8 percent. They are naturally fertile or respond well to fertilizer and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, or soils that have only 20 to 40 inches of suitable material. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, or have a seasonal high water table at or near the surface.

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 releases a variety of plant nutrients as it decomposes.

Water Management

Table 12 gives 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. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, irrigation, terraces and diversions, and grassed waterways.

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 permeable material.

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. 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 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 organic matter 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 ground-water 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 and permeability of the aquifer.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to layers that affect the rate of water movement, permeability, depth to a high water table or depth of standing water if the soil is subject to ponding, slope, susceptibility to flooding, and subsidence of organic layers. Excavating and grading and the stability of ditchbanks are affected by slope and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as sodium. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The performance of a system is affected by the depth of the root zone, the amount of sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope and wetness affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Wetness and slope affect the construction of grassed waterways. Low available water capacity, restricted rooting depth, toxic substances such as sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined 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. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

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 shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 13 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

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. Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(4)* and the system adopted by the American Association of State Highway and Transportation Officials *(3)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy soils are identified as 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 grain-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.

Rock fragments of 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 ovendry 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 grain-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 omitted in the table.

Physical and Chemical Properties

Table 14 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine 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 (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major 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. A bulk density of more than 1.6 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 refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water 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 major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. 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.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major 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.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on the basis of measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; *high*, more than 6 percent; and *very high*, greater than 9 percent.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

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.

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 or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 15 gives estimates of various soil and 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, 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 or 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.

Flooding, the temporary inundation of an area, is 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.

The table gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding 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 flooding 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 flooding is more than 50 percent in any year). *Common* is used when the occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

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.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on observations of the water table at selected sites and on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in the table are the depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves 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 in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel 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 is also expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Soil Fertility Levels

Dr. J. L. Kovar and Dr. W. H. Hudnall, Department of Agronomy, Louisiana Agricultural Experiment Station, Louisiana State University Agricultural Center, prepared this section.

This section contains information on both the environmental factors and the physical and chemical properties of the soils that affect their potential for crop production. It also lists the analytical methods that were used to determine the chemical properties of the sampled soils.

Factors Affecting Crop Production

Crop composition and yield are a function of many environmental, plant, and soil factors.

Environmental factors. The main environmental factors are light (intensity and duration), temperature (air and soil), precipitation (distribution and amount), and atmospheric carbon dioxide concentration.

Plant factors. These factors are species and hybrid specific. They include the rate of nutrient and water uptake and the rate of growth and related plant functions.

Soil factors. These factors include both physical and chemical properties of the soils.

Physical properties. These are distribution, texture, structure, surface area, bulk density, water retention and flow, and aeration.

Chemical properties (soil fertility factors). The quantity of the chemical element, its intensity, the relationship of quantity and intensity, and the rate of replenishment of the elements to the soils are the factors of chemical properties. They affect crop growth.

Quantity factor. This factor describes the concentration of a nutrient ion absorbed or held in exchangeable form on the solid phase of the soil. This form of nutrient ion is also available for plant intake.

Intensity factor. This factor describes the concentration of a nutrient ion in soil solution. Since plant roots absorb nutrients directly from soil solution, this factor quantifies the amount of a nutrient element immediately available for uptake.

Quantity/intensity relationship factor. This factor describes the relationship between the quantity and intensity factors and is sometimes called the buffer power. As the plant root absorbs nutrients from soil solution, the concentration in solution is replenished by ions from the solid phase. If two soils have identical intensity factors, the soil with the greater quantity factor will provide more nutrients during the growing season because it can maintain the intensity factor level for a longer period.

Replenishment factor. This factor is the rate of replenishment of the available supply of nutrients in the solid and solution phases by weathering reactions, fertilizer additions, and transport by mass flow and diffusion.

These factors are interdependent. The magnitude of the factors and the interactions among them control crop response. The relative importance of each factor changes from soil to soil, crop to crop, and environment to environment. The soil factors are only part of the overall system.

The goal of soil testing is to provide information for a soil and crop management program that establishes and maintains optimum levels and balance of the essential elements in the soil for crop and animal nutrition and that protects the environment against the buildup of potentially toxic levels of essential and nonessential elements. Current soil tests attempt to measure the available supply of one or more nutrients in the plow layer. The available supply consists of nutrients characterized by both the intensity and quantity factors. Where crop production is clearly limited by available supply of one or more nutrients, existing soil tests can generally diagnose the problem, and reliable recommendations to correct the problem can be made. Soil management systems generally are based on physical and chemical alteration of the plow layer. Characteristics of this layer can vary from one location to another, depending upon management practices and soil use.

Subsurface horizons are less subject to change or change very slowly as a result of alteration of the plow layer. These horizons reflect the soil's inherent ability to supply nutrients to plant roots and to provide a favorable environment for root growth. If soil fertility recommendations based on current soil tests are followed, major fertility problems in the plow layer are normally corrected. Crop production is then limited by crop and environmental factors, physical properties of the plow layer, and physical and chemical properties of the subsoil.

Chemical Analysis Methods

Information on the available nutrient supply in the subsoil allows evaluation of the natural fertility levels of the soil. Soil profiles were sampled during the soil survey and analyzed for soil reaction; organic matter content; extractable phosphorus; exchangeable cations of calcium, magnesium, potassium, sodium, aluminum, and hydrogen; total acidity; and cation-exchange capacity. The results are summarized in Table 16. More detailed information on chemical analysis of soils is available *(1, 8, 9, 10, 11, 25, 29, 33, 34, 35, 42, 43, 49, 53)*. The methods used to obtain the data are listed below. The codes in parentheses refer to published methods *(49)*.

Reaction (pH)—1:1 soil/water solution (8Cla).
Organic matter—acid-dichromate oxidation (6Ala).
Extractable phosphorus—Bray 2 extractant (0.03 molar ammonium fluoride-0.1 molar hydrochloric acid).
Exchangeable cations—pH 7, 1 molar ammonium acetate-calcium (6N2), magnesium (602), potassium (6Q2), sodium (6P2).
Exchangeable aluminum and hydrogen—1 molar potassium chloride (6G2).
Total acidity—pH 8.2, barium chloride-triethanolamine (6H1a).
Effective cation-exchange capacity—sum of bases plus exchangeable aluminum and hydrogen (5A3b).
Sum cation-exchange capacity—sum of bases plus total acidity (5A3a).
Base saturation—sum of cations/sum cation-exchange capacity (5C3).
Exchangeable sodium percentage—exchangeable sodium/sum cation-exchange capacity.
Aluminum saturation—exchangeable aluminum/effective cation-exchange capacity.

Characteristics of Soil Fertility

In general, four major types of nutrient distribution in soils of Louisiana can be identified. The first type includes soils that have relatively high levels of available nutrients throughout the profile. This type reflects the relatively high fertility status of the parent material from which soils developed and a relatively young age or a less intense degree of weathering of the soil profile. The Commerce, Convent, and Sharkey soils in East and West Feliciana Parishes are in this group.

The second type includes soils that have relatively low levels of available nutrients in the surface layer, but generally have increasing levels with depth through the soil profile. These soils have relatively fertile parent material but are older soils that have been subjected either to weathering over a longer period of time or to more intense weathering. If the levels of available nutrients in the surface layer are low, crops may exhibit deficiency symptoms early in the growing season. Deficiency symptoms often disappear if crop roots are able to penetrate to the more fertile subsoil as the growing season progresses. The majority of the soils in East and West Feliciana Parishes are in this group.

The third type includes soils that have adequate or relatively high levels of available nutrients in the surface layer but have relatively low levels in the subsoil. Such soils developed from low fertility parent material, or they are older soils that have been subjected to more intense weathering over a longer period of time. The higher nutrient levels in the surface layer generally are a result of fertilization in agricultural soils or biocycling in undisturbed soils. The Calhoun and Kenefick soils are in this group.

The fourth type includes soils that have relatively low levels of available nutrients throughout the soil profile. These soils developed from low fertility parent material, or they are older soils that have been subjected to intense weathering over a long period of time. Neither fertilization nor biocycling has contributed to nutrient levels in the surface layer of these soils. The Fluker soils are in this group.

Soil reaction and acidity, organic matter content, sodium content, and cation-exchange capacity can also provide evidence of the general nutrient distribution patterns in soils. Distribution patterns are the result of the interactions of parent material, weathering (climate), time, and to a lesser extent organisms and topography.

Nitrogen. Generally, over 90 percent of the nitrogen in the surface layer is in the form of organic nitrogen. Most of the nitrogen in the subsoil is in the form of fixed ammonium nitrogen. These forms of nitrogen are unavailable for plant uptake, but they can be converted to readily available ammonium and nitrate species.

Nitrogen generally is the most limiting nutrient element in crop production because of high plant demand. In most cases, nitrogen fertilizer recommendations are based on the nitrogen requirement of the crop rather than nitrogen soil test levels because no reliable nitrogen soil tests have been developed for Louisiana soils.

Information on the nitrogen fertility status of a soil can be obtained by measuring several soil nitrogen parameters. These include the amount of readily available ammonium and nitrate nitrogen in the soil, the amount of organic nitrogen, the rate of mineralization of organic nitrogen to available forms of inorganic nitrogen, and the rate of conversion of fixed ammonium nitrogen to available forms of nitrogen. Unfortunately, since the amounts and rates of transformation of the various forms of nitrogen in the soils of East and West Feliciana Parishes have not been determined, no assessment of the nitrogen fertility status for these soils can be given. However, fertilizer nitrogen recommendations obtained from the Louisiana Cooperative Extension Service may be used to determine application rates.

Phosphorus. Phosphorus exists in soils as inorganic phosphorus in soil solution; as discrete minerals, such as hydroxyapatite, variscite, and strengite; as occluded or coprecipitated phosphorus in other minerals; as phosphorus retained on the surfaces of minerals, such as carbonates, metal oxides, and layer silicates; and in organic compounds. Soil solution concentrations of phosphorus are generally low. Since plant roots obtain almost all phosphorus from the soil solution, phosphorus uptake depends on the ability of the soil solid phase phosphorus to maintain phosphorus concentration in soil solution. Soil test procedures generally attempt to measure soil solution phosphorus and the readily available solid phase phosphorus that buffers the solution phase concentration.

The Bray 2 extractant tends to extract more phosphorus than the commonly used Bray 1, Mehlich 1, and Olsen extractants *(10, 29, 34)*. The Bray 2 extractant provides an estimate of both the readily available and slowly available supply of phosphorus in soils. The Bray 2 extractable phosphorus content of most of the soils in East and West Feliciana Parishes is uniformly low throughout the soil profile, except where additions of fertilizer phosphorus has raised the level of extractable phosphorus in the surface layer. Exceptions are the Commerce, Convent, Deerford, Robinsonville, and Sharkey soils which are medium or high in extractable phosphorus content throughout the profile. Low levels of available phosphorus are a limiting factor in crop production. Continual additions of fertilizer phosphorus to such soils is needed to build up and maintain adequate levels of available phosphorus for sustained crop production.

Potassium. Potassium exists in four major forms in soils. These are soil solution potassium, exchangeable potassium associated with negatively charged sites on clay mineral surfaces, nonexchangeable potassium trapped between clay mineral interlayers, and structural potassium within the crystal lattice of minerals. Exchangeable potassium in soils can be replaced by other cations and is generally readily available for plant uptake. To become available to plants, nonexchangeable potassium and structural potassium must be converted to exchangeable potassium through weathering reactions.

The exchangeable potassium content in soils is an estimate of the supply available to plants. The available supply of potassium in the soils of East and West Feliciana Parishes is very low to low throughout the soil profile. Low exchangeable potassium levels indicate a general lack of micaceous minerals, which are a source of exchangeable potassium during weathering.

Crops respond to fertilizer potassium if exchangeable potassium levels are very low to low. Low levels can gradually be built up by adding fertilizer potassium to soils that contain a sufficient amount of clay to hold the potassium. Exchangeable potassium levels can be maintained by adding enough fertilizer potassium to account for crop removal, fixation of exchangeable potassium to nonexchangeable potassium, and leaching losses. The soils in East and West Feliciana Parishes that have a sandier texture, such as Crevasse and Ochlockonee soils, do not have a sufficient amount of clay to hold the potassium; therefore, they do not have a sufficiently high cation-exchange capacity to maintain adequate quantities of available potassium for sustained crop production. More frequent additions of potassium are needed to balance losses of potassium by leaching in these soils.

Magnesium. Magnesium exists in soil solution, as exchangeable magnesium associated with negatively charged sites on clay mineral surfaces, and as structural magnesium in mineral crystal lattices. Solution and exchangeable magnesium generally are readily available for plant uptake, whereas structural magnesium must be converted to exchangeable magnesium during mineral weathering reactions.

According to soil test interpretation guidelines, the exchangeable magnesium content of the soils of East and West Feliciana Parishes is low, medium, or high, depending on the soil texture. Low exchangeable magnesium levels are found throughout most of the soil profile in soils such as the Cascilla and Ochlockonee soils. The Bude and Guyton soils have low levels in the upper part of the profile and medium to high levels in the lower part. Variable levels throughout the profile are evident in the Kenefick soils. Higher levels of exchangeable magnesium in certain soil horizons are generally associated with higher clay content in those horizons.

The levels of exchangeable magnesium in most of the soils in East and West Feliciana Parishes are more than adequate for crop production, especially where the plant roots can exploit the high levels found in the subsoil. Because magnesium deficiencies in plants are normally rare, fertilizer sources of magnesium are generally not needed for crop production.

Calcium. Calcium exists in soil solution, as exchangeable calcium associated with negatively charged sites on clay mineral surfaces, and as structural calcium in mineral crystal lattices. Exchangeable calcium generally is available for plant intake while structural calcium is not.

Calcium deficiencies in plants are extremely rare. Calcium is normally added to soils from liming materials used to correct problems associated with soil acidity.

Some soils in East and West Feliciana Parishes, such as Natchez soils, have low or medium levels in the upper part of the profile and medium to high levels in the lower part. Still other soils, such as Deerford and Frost soils, have variable levels throughout the soil profile. The higher levels of exchangeable calcium in the surface layer are normally associated with a higher soil reaction than in the subsoil and are probably the result of applications of lime to control soil acidity. Higher exchangeable calcium levels in the subsoil than in the surface layer generally are associated with a higher content of clay in the subsoil.

Calcium is normally the most abundant exchangeable cation in soils; however, the exchangeable magnesium levels in the subsoil of the Bude, Fluker, Kenefick, Guyton, Loring, Olivier, Ruston, and Toula soils are greater than the exchangeable calcium levels. In the other soils in the parish, exchangeable calcium levels are greater than, or about the same as, the exchangeable magnesium levels.

Organic matter. The organic matter content of a soil greatly influences other soil properties. High organic matter content in mineral soils is desirable, while low organic matter content can lead to many problems. Increasing the organic matter content can greatly improve the soil structure, drainage, and other physical properties. It can also increase the moisture-holding capacity, cation-exchange capacity, and nitrogen content.

Increasing the organic matter content is very difficult because organic matter is continually subject to microbial degradation. This is especially true in Louisiana where higher soil temperatures and water content increase microbial activity. The rate of organic matter degradation in native plant communities is balanced by the rate of input of fresh material. Disruption of this natural process can lead to a decline in the organic matter content of the soil. Unsound management practices lead to a further decrease in organic matter content.

If no degradation of organic matter occurs, 10 tons of organic matter additions will raise the organic matter content in the upper 6 inches of soil by just 1 percent. Since breakdown of organic matter does occur in the soil, large amounts must be added for several decades before a small increase in the organic matter content can be achieved. Conservation tillage and cover crops slowly increase the organic matter content over time, or at least prevent further declines.

The organic matter content of most of the soils of East and West Feliciana Parishes is low. It decreases sharply with depth because fresh inputs of organic matter are confined to the surface layer. These low levels reflect the high rate of organic matter degradation, erosion, and cultural practices that make maintenance of organic matter at higher levels difficult.

Sodium. Sodium exists in soil solution, as exchangeable sodium associated with negatively charged sites on clay mineral surfaces, and as structural sodium in mineral crystal lattices. Because sodium is readily soluble and is generally not strongly retained by soils, well drained soils subjected to moderate or high rainfall do not normally have significant amounts of sodium. Soils in low rainfall environments, soils that have restricted drainage in the subsoil, and soils of the coastal marsh may have significant amounts of sodium. High levels of exchangeable sodium in soils are associated with undesirable physical properties, such as poor structure, slow permeability, and restricted drainage.

Elevated exchangeable sodium levels are at depth in some soils, such as the Deerford and Toula soils. Higher than normal levels of exchangeable sodium in the soils are probably associated with restricted drainage in the subsoil. Levels of exchangeable sodium that make up more than 6 percent of the sum of the effective cation-exchange capacity in the rooting depth of summer annuals can create undesirable physical properties in soils, such as crusting of the surface, dispersion of soil particles, low water infiltration rates, and low hydraulic conductivity.

Exchangeable aluminum and hydrogen, pH, and exchangeable and total acidity. The pH of the soil solution in contact with the soil affects other soil properties. Soil pH is an intensity factor rather than a quantity factor. The lower the pH, the more acidic the soil. Soil pH controls the availability of essential and nonessential elements by controlling mineral solubility, ion exchange, and absorption-desorption reactions at the surfaces of the soil minerals and organic matter. The pH also affects microbial activity.

Aluminum exists in soils as exchangeable polymeric hydrolysis species, aluminum oxides, and aluminosilicate minerals. Exchangeable aluminum in soils is determined by extraction with neutral salts, such as potassium chloride or barium chloride. The exchangeable aluminum in soils is directly related to pH. If the pH is less than 5.5, the soils have significant amounts of exchangeable aluminum that has a charge of plus 3. The species of aluminum is toxic to plants. The toxic effects of aluminum on plant growth can be alleviated by adding lime to the soil to convert exchangeable aluminum to nonexchangeable polymeric hydrolysis species. High levels of organic matter can also alleviate aluminum toxicity.

Sources of exchangeable hydrogen in soils include hydrolysis of exchangeable and nonexchangeable aluminum and pH-dependent exchange sites on metal oxides, certain layer silicates, and organic matter. Exchangeable hydrogen, as determined by extraction with such neutral salts as potassium chloride, is normally not a major component of soil acidity. Exchangeable hydrogen is not readily replaced by other cations unless accompanied by a neutralization reaction. Most of the neutral salt-exchangeable hydrogen in soils apparently comes from aluminum hydrolysis.

Acidity from hydrolysis of neutral salt-exchangeable aluminum plus neutral salt-exchangeable hydrogen from pH-dependent exchange sites makes up the exchangeable acidity in soils. Exchangeable acidity is determined by the pH of the soil. Titratable acidity is the amount of acidity neutralized to a selected pH, generally pH 7 or 8.2, and constitutes the total potential acidity of a soil. All sources of soil acidity, including hydrolysis of monomeric and polymeric aluminum species and hydrogen from pH-dependent exchange sites on metal oxides, layer silicates, and organic matter, contribute to the total potential acidity. Total potential acidity in soils is determined by titration with base or incubation with lime; extraction with a buffered extractant followed by titration of the buffered extractant (pH 8.2, barium chloride-triethanolamine method); or equilibration with buffers followed by estimation of acidity from changes in buffer pH.

Most of the soils in East and West Feliciana Parishes have a low pH, contain significant quantities of exchangeable aluminum, and have high levels of total acidity in many of the soil horizons. Examples are Bude, Calhoun, Feliciana, Fluker, Guyton, Loring, Ochlockonee, Olivier, Ouachita, Ruston, Smithdale, Tangi, and Toula soils. The high levels of exchangeable aluminum are a major limiting factor in crop production. High levels of exchangeable aluminum in the surface layer of the soils can be reduced by adding lime. No economical methods are presently available to neutralize soil acidity at depth. Some reduction of exchangeable aluminum levels at depth can be achieved by applying gypsum so that the calcium leaches through the soil and replaces the exchangeable aluminum.

Cation-exchange capacity. The cation-exchange capacity is a measure of the amount of nutrient and non-nutrient cations a soil can hold in an exchangeable form. The cation-exchange capacity depends on the number of negatively charged sites, both permanent and pH-dependent, present in the soil. Permanent charge cation-exchange sites occur because a net negative charge develops on mineral surface from substitution of ions within the crystal lattice. A negative charge developed from ionization of surface hydroxyl groups on minerals and organic matter produces pH-dependent cation-exchange sites.

Methods for determining cation-exchange capacity are available and can be classified as one of two types. These include methods that use unbuffered salts to measure the cation-exchange capacity at the pH of the soil and methods that use buffered salts to measure the cation-exchange capacity at a specific pH. These methods produce different results since the unbuffered salt methods include only a part of the pH-dependent cation-exchange capacity and the buffered salt methods include all of the pH-dependent cation-exchange capacity up to the pH of the buffer (pH 7 and 8.2). Errors in the saturation, washing, and replacement steps can also cause different results.

The effective cation-exchange capacity is the sum of exchangeable bases, which includes calcium, magnesium, potassium, and sodium. Effective cation-exchange capacity is determined by extraction with 1 molar ammonium acetate at pH 7 plus the sum of neutral salt-exchangeable aluminum and hydrogen (exchangeable acidity). The sum cation-exchange capacity is the sum of exchangeable bases plus the total acidity determined by extraction with pH 8.2, barium chloride-triethanolamine. The effective cation-exchange capacity is generally less than the sum cation-exchange capacity and includes only that part of the pH-dependent cation-exchange capacity that is determined by exchange of hydrogen with a neutral salt. The sum cation-exchange capacity includes all of the pH-dependent cation-exchange capacity up to pH 8.2. If a soil contains no pH-dependent exchange sites or the pH of the soil is about 8.2, the effective and sum cation-exchange capacities will be about the same. The larger the cation-exchange capacity, the larger the capacity to store nutrient cations.

The pH-dependent charge is a significant source of the cation-exchange capacity in most soils of East and West Feliciana Parishes. Since the pH-dependent cation-exchange capacity increases with pH, the cation-exchange capacity of many of the soils can be increased by adding lime. This would result in a greater storage capacity for nutrient cations, such as potassium, magnesium, and calcium.

Physical and Chemical Analyses of Selected Soils

The results of physical analysis of several typical pedons in the survey area are given in table 17 and the results of chemical analysis in table 18. 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 the National Soil Survey Laboratory, Natural Resources Conservation Service, Lincoln, Nebraska.

Most determinations, except those for grain-size analysis and bulk density, were made on soil material smaller than 2 millimeters in diameter. Measurements reported as percent or quantity of unit weight were calculated on an ovendry basis. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods *(49)*.

Sand—(0.05-2.0 mm fraction) weight percentages of material less than 2 mm (3A1).

Silt—(0.002-0.05 mm fraction) pipette extraction, weight percentages of all material less than 2 mm (3A1).

Clay—(fraction less than 0.002 mm) pipette extraction, weight percentages of material less than 2 mm (3A1).

Water retained—pressure extraction, percentage of ovendry weight of less than 2 mm material; 1/3 or 1/10 bar (4B1), 15 bars (4B2).

Water-retention difference—between 1/3 bar and 15 bars for whole soil (4C1).

Bulk density—of less than 2 mm material, saran-coated clods field moist (4A1a), 1/3 bar (4A1d), ovendry (4A1h).

Linear extensibility—change in clod dimension based on whole soil (4D). Linear extensibility divided by 100 equal coefficient of linear extensibility (COLE).

Organic carbon—wet combustion. Walkley-Black modified acid-dichromate, ferric sulfate titration (6A1c).

Extractable cations—ammonium acetate pH 7.0, atomic absorption; calcium (6N2e), magnesium (6O2d), sodium (6P2b), potassium (6Q2b).

Extractable acidity—barium chloride-triethanolamine IV (6H5a).

Cation-exchange capacity—ammonium acetate, pH 7.0, steam distillation (5A8b).

Base saturation—ammonium acetate, pH 7.0 (5C1).

Reaction (pH)—1:1 water dilution (8C1f).

Reaction (pH)—calcium chloride (8C1f).

Aluminum—potassium chloride extraction (6G9).

Iron—acid oxalate extraction (6C9a).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(48)*. 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 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven 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 Entisol.

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 Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

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 Hydraquents (*Hydr*, meaning presence of water, plus *aquent*, the suborder of the Entisols that has an aquic 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 *Typic* identifies the subgroup that typifies the great group. An example is Typic Hydraquents.

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, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, siliceous, superactive, nonacid, thermic Typic Hydraquents.

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. There can be some variation in the texture of the surface layer or of the substratum within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(47)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(48)* and in "Keys to Soil Taxonomy" *(50)*. 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.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Arat Series

The Arat series consists of very poorly drained, slowly permeable, very fluid mineral soils. These soils formed in herbaceous material and loamy alluvium. They are in abandoned stream channels and in backswamps of major streams. These soils are ponded most of the time and are frequently flooded. Slopes are less than 1 percent. Soils of the Arat series are fine-silty, siliceous, nonacid, thermic Typic Hydraquents.

Arat soils commonly are near Bigbee and Morganfield soils. Both of these soils are in higher positions than the

Arat soils. Bigbee soils are excessively drained and sandy throughout the profile. Morganfield soils are well drained and are loamy and nonfluid throughout the profile.

Typical pedon of Arat muck; 2.2 miles northwest of Delombre, 2,000 feet west of Thompson Creek, 200 feet south of U.S. Highway 61; Spanish Land Grant sec. 69, T. 3 S., R. 2 W., West Feliciana Parish; USGS Port Hudson topographic quadrangle; latitude 30 degrees 44 minutes 48 seconds N.; longitude 91 degrees 17 minutes 29 seconds W.

Oa—0 to 5 inches; very dark grayish brown (10YR 3/2) muck; very fluid; common wood and moss fibers; moderately acid; clear wavy boundary.

A—5 to 12 inches; dark gray (10YR 4/1) silt loam; massive; very fluid; few wood fragments; neutral; clear wavy boundary.

Cg1—12 to 40 inches; gray (5Y 5/1) silty clay loam; massive; very fluid; few wood fragments; neutral; clear wavy boundary.

Cg2—40 to 60 inches; gray (5Y 5/1) silty clay loam; massive; very fluid; many logs and wood fragments; very strongly acid.

All mineral horizons have *n* value of 1 or more.

The Oa horizon has value of 2 to 4 and chroma of 1 or 2. Reaction ranges from strongly acid to slightly acid.

The A horizon has value of 2 to 4 and chroma of 1 or 2. Undecomposed logs and fragments of wood range from few to many. Texture is silty clay loam, mucky silty clay loam, silt loam, or mucky silt loam. Reaction ranges from strongly acid to neutral.

The Cg horizon has hue of 10YR, 2.5Y, or 5Y, value of 3 to 5, and chroma of 1 or 2. Undecomposed logs and fragments of wood range from few to many. Texture is silty clay loam, silt loam, or mucky silty clay loam. Reaction ranges from very strongly acid to neutral.

Bigbee Series

The Bigbee series consists of excessively drained, rapidly permeable soils that formed in sandy sediments. These soils are on low terraces along flood plains. Slopes range from 0 to 2 percent. Soils of the Bigbee series are thermic, coated Typic Quartzipsamments.

Bigbee soils commonly are near Loring, Memphis, Morganfield, Natchez, Ochlockonee, and Weyanoke soils. Loring, Memphis, Natchez, and Weyanoke soils are on terraces at a higher elevation than the Bigbee soils. Morganfield and Ochlockonee soils are on flood plains. Loring and Memphis soils are fine-silty; Morganfield, Natchez, and Weyanoke soils are coarse-silty; and Ochlockonee soils are coarse-loamy.

Typical pedon of Bigbee loamy sand, in an area of Morganfield and Bigbee soils, flooded; 2.1 miles west of Hardwood, 100 feet east of Bayou Sara, 100 feet south of a gravel road; Spanish Land Grant sec. 62, T. 3 S., R. 3 W., West Feliciana Parish; USGS St. Francisville topographic quadrangle; latitude 30 degrees 48 minutes 21 seconds N.; longitude 91 degrees 25 minutes 17 seconds W.

A—0 to 7 inches; brown (10YR 5/3) loamy sand; single grained; loose; few medium and coarse roots; moderately acid; clear smooth boundary.

C1—7 to 20 inches; light yellowish brown (10YR 6/4) loamy sand; single grained; loose; few medium and coarse roots; moderately acid; clear wavy boundary.

C2—20 to 36 inches; yellowish brown (10YR 5/4) loamy sand; single grained; loose; few coarse roots; moderately acid; clear wavy boundary.

C3—36 to 60 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; few coarse roots; moderately acid.

The thickness of sand and loamy sand exceeds 80 inches. Reaction ranges from very strongly acid to moderately acid throughout the soil.

The A horizon has value of 3 or 4 and chroma of 2 to 4 or value of 4 or 5 and chroma of 3. It is 5 to 10 inches thick.

The upper part of the C horizon has hue of 10YR, 7.5YR, or 5YR, value of 5 to 7, and chroma of 4, 6, or 8. The lower part of the C horizon has value of 6 or 7 and chroma of 3 or 4. Texture is fine sand, sand, or loamy sand in the upper part of the C horizon and sand or fine sand in the lower part.

Bude Series

The Bude series consists of somewhat poorly drained soils that have a fragipan. Permeability is moderate in the upper part of the soil and slow in the fragipan. These soils formed in a silty mantle less than 4 feet thick and the underlying loamy sediments. They are on uplands. Slopes range from 0 to 2 percent. Soils of the Bude series are fine-silty, mixed, thermic Glossaquic Fragiudalfs.

Bude soils are similar to Fluker and Olivier soils and commonly are near Calhoun, Tangi, and Toula soils. Calhoun soils are poorly drained, are mainly in depressional areas, and are gray throughout the profile. Fluker and Olivier soils are on terraces and have mixed mineralogy. Tangi and Toula soils are in higher positions on the landscape than the Bude soils and do not have gray mottles in the upper part of the subsoil.

Typical pedon of Bude silt loam, 0 to 2 percent slopes; 4,000 feet southeast of Blairstown, 1,500 feet south of Highway 959, 0.25 mile north of Feliciana Eastern Railroad, 100 feet east of a gravel road; sec. 31, T. 3 S., R. 3 E., East Feliciana Parish; USGS Pride topographic quadrangle;

latitude 30 degrees 44 minutes 52 seconds N.; longitude 90 degrees 56 minutes 54 seconds W.

A—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine and medium and few coarse roots; very strongly acid; clear smooth boundary.

E—5 to 11 inches; pale brown (10YR 6/3) silt loam; few medium faint light brownish gray (10YR 6/2) mottles; weak fine granular structure; friable; common fine and medium and few coarse roots; very strongly acid; clear wavy boundary.

Bw1—11 to 15 inches; light yellowish brown (10YR 6/4) silt loam; common fine distinct strong brown (7.5YR 5/6) and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; common fine and medium and few coarse roots; very strongly acid; clear wavy boundary.

Bw2—15 to 20 inches; light yellowish brown (10YR 6/4) silt loam; common medium distinct light brownish gray (10YR 6/2) and strong brown (7.5YR 4/6) mottles; weak medium subangular blocky structure; friable; common fine, medium, and coarse roots; strongly acid; clear wavy boundary.

E/Bx—20 to 24 inches; light brownish gray (10YR 6/2) silt loam (E) and light yellowish brown (10YR 6/4) silt loam (Bx); common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; few coarse roots; strongly acid; clear wavy boundary.

Btx1—24 to 27 inches; mottled light brownish gray (10YR 6/2), yellowish brown (10YR 5/6), and light yellowish brown (10YR 6/4) silt loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few faint clay films on faces of peds; few discontinuous light gray (10YR 7/1) silt loam seams about 1/4 inch wide surround prisms and make up about 15 percent of the volume; few fine and medium roots in seams between peds; strongly acid; gradual wavy boundary.

2Btx2—27 to 44 inches; mottled yellowish brown (10YR 5/6), light yellowish brown (10YR 6/4), light brownish gray (10YR 6/2), and strong brown (7.5YR 4/6) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few faint clay films on faces of peds; few discontinuous light gray (10YR 7/1) silt loam seams about 1/4 inch wide surround prisms and make up about 15 percent of the volume; few fine and medium roots in seams between peds; strongly acid; gradual wavy boundary.

2Btx3—44 to 60 inches; mottled light yellowish brown (10YR 6/4) and light brownish gray (10YR 6/2) silt loam; moderate medium prismatic structure parting to weak medium subangular blocky; few faint clay films on faces of peds; firm; few discontinuous light gray (10YR 7/1) seams about 1/4 inch wide surround prisms and make up about 15 percent of the volume; few coarse roots in seams between peds; moderately acid.

The solum is more than 60 inches thick. Depth to the fragipan ranges from 18 to 40 inches. Gray mottles are within 16 inches of the soil surface. In at least one subhorizon within a depth of 30 inches, exchangeable aluminum makes up 50 percent or more of the effective cation-exchange capacity. Reaction ranges from very strongly acid to moderately acid throughout the solum, except for surface layers that have been limed.

The A horizon has value of 4 and chroma of 2 or 3 or value of 3 and chroma of 1. It is 4 to 8 inches thick.

The E horizon has value of 5 or 6 and chroma of 3 or value of 6 and chroma of 4.

The Bw horizon has hue of 10YR, value of 4 to 6, and chroma of 4, 6, or 8; or it has hue of 7.5YR, value of 5, and chroma of 6. Mottles with chroma of 2 or less are within the upper 10 inches of the Bw horizon. Texture is silt loam or silty clay loam. Between a depth of 10 inches and the upper boundary of the fragipan, clay content ranges from 18 to 30 percent and sand content is less than 15 percent.

The EB and BE horizons, where present, have hue of 10YR, value of 4 to 6, and chroma of 4 or value of 4 to 6, and chroma of 4, 6, or 8; or they have hue of 7.5YR, value of 5, and chroma of 6. Texture is silt loam or silty clay loam.

The E/Bx horizon is mottled in shades of brown, yellow, or gray. Clay content is less than that of the EB, BE, and Btx horizons.

The Btx horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2; or it is mottled in shades of brown, yellow, or gray. Texture is silt loam or silty clay loam.

The 2Btx horizon has the same colors as the Btx horizon. Texture is silt loam, silty clay loam, or clay loam.

Calhoun Series

The Calhoun series consists of poorly drained, slowly permeable soils that formed in loess or mixed loess and silty sediments. These soils are on terraces and on flood plains. They are subject to rare to frequent flooding. Slopes are less than 1 percent. Soils of the Calhoun series are fine-silty, mixed, thermic Typic Glossaqualfs.

Calhoun soils commonly are near Deerford, Loring, and Olivier soils. All of these soils are in higher positions on the landscape than the Calhoun soils. Deerford soils have a natric horizon. Loring and Olivier soils have a fragipan.

Typical pedon of Calhoun silt loam; 600 feet north of Highway 964, 7,700 feet east of Thompson Creek; Spanish Land Grant sec. 74, T. 3 S., R. 2 W., West Feliciana Parish; USGS Port Hudson topographic quadrangle; latitude

30 degrees 44 minutes 51 seconds N.; longitude 91 degrees 15 minutes 48 seconds W.

Ap—0 to 7 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; friable; many fine roots; very strongly acid; clear smooth boundary.

Eg1—7 to 13 inches; light brownish gray (10YR 6/2) silt loam; common fine distinct dark yellowish brown (10YR 4/4) mottles; weak fine platy structure; friable; many fine roots; strongly acid; clear smooth boundary.

Eg2—13 to 20 inches; light gray (10YR 7/1) silt loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak fine subangular blocky structure; friable; common fine roots; very strongly acid; gradual wavy boundary.

Eg/Btg—20 to 25 inches; 80 percent light brownish gray (10YR 6/2) silt loam (Eg) and 20 percent grayish brown (10YR 5/2) silt loam (Btg); common medium distinct yellowish brown (10YR 5/4) mottles; weak fine subangular blocky structure; friable; few fine roots; the Btg material occurs as discontinuous prisms within the Eg material; few faint clay films on faces of peds; few black concretions; very strongly acid; gradual wavy boundary.

Btg/Eg—25 to 31 inches; 70 percent grayish brown (10YR 5/2) silt loam (Btg) and 30 percent light brownish gray (10YR 6/2) silt loam (Eg); common medium distinct yellowish brown (10YR 5/6 and 10YR 5/4) mottles; moderate very coarse prismatic structure parting to weak medium subangular blocky; friable; few fine roots; the Eg material occurs as tongues 2 to 5 inches wide between prisms; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg1—31 to 41 inches; grayish brown (10YR 5/2) silt loam; common medium distinct yellowish brown (10YR 5/6 and 10YR 5/4) mottles; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; common light gray (10YR 7/1) silt coats on ped faces; strongly acid; gradual wavy boundary.

Btg2—41 to 52 inches; grayish brown (10YR 5/2) silty clay loam; common medium distinct dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; common light gray (10YR 7/1) silt coats on ped faces; many black concretions; very strongly acid; gradual wavy boundary.

BCg—52 to 60 inches; grayish brown (10YR 5/2) silt loam; many coarse distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; very strongly acid.

The thickness of the solum ranges from 40 to 80 inches. In at least one subhorizon within a depth of 30 inches, exchangeable aluminum makes up 20 to 50 percent of the effective cation-exchange capacity.

The Ap horizon has value of 4 to 6 and chroma of 1 to 3. It is 5 to 10 inches. Reaction ranges from extremely acid to moderately acid.

The Eg horizon and the Eg part of the Eg/Btg and Btg/Eg horizons have hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. Reaction ranges from extremely acid to moderately acid.

The Btg horizon and the Btg part of the Eg/Btg and Btg/Eg horizons have hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. Texture is silt loam or silty clay loam. Reaction ranges from extremely acid to neutral.

The BCg horizon and the Cg horizon, where present, have hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 to 3. Reaction ranges from extremely acid to slightly alkaline.

Cascilla Series

The Cascilla series consists of well drained, moderately permeable soils that formed in loamy alluvium. These soils are on flood plains and are frequently flooded. Slopes range from 0 to 2 percent. Soils of the Cascilla series are fine-silty, mixed, thermic Fluventic Dystrochrepts.

Cascilla soils commonly are near Calhoun, Deerford, and Olivier soils. Calhoun soils are on terraces and on flood plains. The soils on flood plains are in lower positions than the Cascilla soils. Calhoun soils are gray throughout the profile. Deerford and Olivier soils are on terraces. Deerford soils have a natric horizon, and Olivier soils have a fragipan.

Typical pedon of Cascilla silt loam, in an area of Calhoun and Cascilla silt loams, frequently flooded; 2.3 miles southwest of Slaughter, 1,700 feet north of parish line, 200 feet east of White Bayou; Spanish Land Grant sec. 52, T. 4 S., R. 1 W., West Feliciana Parish; USGS Port Hudson topographic quadrangle; latitude 30 degrees 44 minutes 51 seconds N.; longitude 91 degrees 15 minutes 48 seconds W.

A—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; common medium and coarse roots; very strongly acid; clear smooth boundary.

Bw1—6 to 19 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; friable; common medium and coarse roots; very strongly acid; clear wavy boundary.

Bw2—19 to 40 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; common medium and coarse roots; very strongly acid; clear wavy boundary.

Bw3—40 to 50 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct yellowish brown (10YR 5/8) and pale brown (10YR 6/3) mottles; weak fine subangular blocky structure; friable; strongly acid; clear wavy boundary.

BC—50 to 60 inches; yellowish brown (10YR 5/6) silt loam; common medium distinct light brownish gray (10YR 6/2) mottles; weak fine subangular blocky structure; friable; very strongly acid.

The thickness of the solum ranges from 45 to 80 inches. In at least one subhorizon within a depth of 30 inches, exchangeable aluminum makes up 50 percent or more of the effective cation-exchange capacity. Reaction is very strongly acid or strongly acid throughout the solum, except for surface layers that have been limed.

The Ap horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4. It is 5 to 8 inches thick. Some pedons have an A horizon less than 6 inches thick. Where present, it has hue of 10YR, value of 3, and chroma of 1 to 3.

The BA horizon, where present, has colors and texture similar to those of the Ap horizon.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3, 4, or 6. Some pedons have few to common mottles in shades of gray below a depth of 24 inches from the surface. Texture is silt loam or silty clay loam. The clay content ranges from 18 to 30 percent. Some pedons have a few clay films in pores.

The BC horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. Most pedons have few or common mottles in shades of gray.

The 2C horizon, where present, has hue of 10YR, 2.5Y, or 5Y, value of 4 or 5, and chroma of 2, 3, 4, or 6; or it is mottled in shades of brown and gray. Texture is fine sandy loam, loam, or silt loam.

Commerce Series

The Commerce series consists of somewhat poorly drained, moderately slowly permeable soils. These soils formed in loamy alluvium. They are on the flood plains of the Mississippi River and its distributaries. Some soils are subject to occasional or frequent flooding, and others are protected from flooding by levees. Slopes range from 0 to 3 percent. Soils of the Commerce series are fine-silty, mixed, nonacid, thermic Aeric Fluvaquents.

Commerce soils commonly are near Convent, Fausse, Robinsonville, Sharkey, and Tunica soils. Convent and Robinsonville soils are in higher positions than the Commerce soils. Convent soils are coarse-silty, and Robinsonville soils are coarse-loamy. Fausse, Tunica, and Sharkey soils are in lower positions than the Commerce soils and have a clayey subsoil.

Typical pedon of Commerce silt loam; on Louisiana State Penitentiary Farm at Angola, about 72 feet southwest of farm road, 156 feet north of turnrow behind St. Augustine Church; Spanish Land Grant sec. 48, T. 1 S., R. 5 W., West Feliciana Parish; USGS Tunica topographic quadrangle; latitude 30 degrees 58 minutes 11 seconds N.; longitude 91 degrees 36 minutes 25 seconds W.

Ap—0 to 5 inches; dark brown (10YR 3/3) silt loam; weak fine granular structure; friable; strongly acid; clear smooth boundary.

Bw1—5 to 21 inches; dark grayish brown (10YR 4/2) silty clay loam; few fine distinct dark yellowish brown (10YR 4/4) mottles; weak fine subangular blocky structure; firm; neutral; clear smooth boundary.

Bw2—21 to 31 inches; grayish brown (10YR 5/2) silt loam; few fine distinct dark yellowish brown (10YR 4/4) mottles; weak fine subangular blocky structure; friable; slightly alkaline; clear smooth boundary.

C—31 to 60 inches; grayish brown (10YR 5/2) silty clay loam; common fine distinct dark yellowish brown (10YR 4/4) mottles; massive; friable; slightly alkaline.

The thickness of the solum ranges from 20 to 45 inches.

The Ap horizon has value of 3 to 5 and chroma of 1 to 3. It is 4 to 12 inches thick. Texture is silt loam or silty clay loam. Reaction ranges from strongly acid to moderately alkaline.

The Bw horizon and the BC horizon, where present, have hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. Texture is silt loam, loam, or silty clay loam. Reaction ranges from slightly acid to moderately alkaline.

Some pedons have a buried A horizon. Where present, it has colors and texture similar to those of the Ap horizon. Reaction ranges from neutral to moderately alkaline.

The C horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. Texture is silt loam, silty clay loam, loam, or very fine sandy loam. In some pedons, it is stratified. Thin layers of silty clay are in some pedons. Reaction ranges from neutral to moderately alkaline.

Convent Series

The Convent series consists of somewhat poorly drained, moderately permeable soils. These soils formed in loamy alluvium. They are on flood plains of the Mississippi River and its distributaries. These soils are protected from flooding by levees. Slopes range from 0 to 3 percent. Soils of the Convent series are coarse-silty, mixed, nonacid, thermic Aeric Fluvaquents.

Convent soils commonly are near Commerce, Robinsonville, Sharkey, and Tunica soils. Commerce, Sharkey, and Tunica soils are in lower positions than the Convent soils. Commerce soils are fine-silty. Sharkey and Tunica soils have a clayey subsoil. Robinsonville soils are in higher positions than the Convent soils and are coarse-loamy.

Typical pedon of Convent silt loam; on Louisiana State Penitentiary Farm at Angola, about 5,800 feet northeast of farm headquarters, 300 feet south of Lake Killarney;

Spanish Land Grant sec. 49, T. 1 S., R. 5 W., West Feliciana Parish; USGS Tunica topographic quadrangle; latitude 30 degrees 58 minutes 21 seconds N.; longitude 91 degrees 35 minutes 51 seconds W.

Ap1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine roots; many worm casts; neutral; clear smooth boundary.

Ap2—4 to 9 inches; brown (10YR 5/3) very fine sandy loam; weak fine granular structure; friable; many fine roots; many worm casts; slightly alkaline; clear smooth boundary.

C1—9 to 19 inches; grayish brown (10YR 5/2) very fine sandy loam; massive; friable; slightly alkaline; clear wavy boundary.

C2—19 to 32 inches; grayish brown (10YR 5/2) silt loam; few fine distinct yellowish brown (10YR 5/4) mottles; massive; friable; moderately alkaline; clear wavy boundary.

C3—32 to 60 inches; dark grayish brown (10YR 4/2) silt loam; massive; moderately alkaline.

The Ap horizon is silt loam in the upper part and silt loam, very fine sandy loam, or fine sandy loam in the lower part. It is 4 to 12 inches thick. Reaction ranges from moderately acid to moderately alkaline.

The C horizon has hue of 2.5Y or 10YR, value of 4 or 5, and chroma of 1 or 2. Some pedons have hue of 10YR, value of 3, 4, or 6, and chroma of 3; hue of 7.5YR, value of 4, and chroma of 2 to 4; or hue of 5YR, value of 4, and chroma of 2. Texture is silt loam or very fine sandy loam. Some pedons have thin layers of finer or coarser material, and some pedons have carbonates in some subhorizons below a depth of 20 inches. Reaction ranges from moderately acid to moderately alkaline.

Crevasse Series

The Crevasse series consists of excessively drained, rapidly permeable soils that formed in sandy alluvium. These soils are on the flood plains of the Mississippi River. They are subject to frequent flooding. Slopes range from 0 to 5 percent. Soils of the Crevasse series are mixed, thermic Typic Udipsamments.

Crevasse soils commonly are near Convent and Robinsonville soils. Both of these soils are in higher positions than the Crevasse soils. Convent soils are coarse-silty, and Robinsonville soils are coarse-loamy.

Typical pedon of Crevasse loamy sand, frequently flooded; about 5.7 miles northeast of Morganza, 4,900 feet southeast of Shaw Lake, 200 feet east of the Mississippi River; sec. 14, T. 3 S., R. 4 W., West Feliciana Parish; USGS Lacour topographic quadrangle; latitude 30 degrees 47 minutes 56 seconds N.; longitude 91 degrees 31 minutes 48 seconds W.

A—0 to 6 inches; brown (10YR 5/3) loamy sand; single grained; loose; few fine and medium roots; moderately alkaline; clear smooth boundary.

C1—6 to 40 inches; yellowish brown (10YR 5/4) loamy sand; single grained; loose; slightly alkaline; clear wavy boundary.

C2—40 to 60 inches; brown (10YR 5/3) loamy sand; single grained; loose; common bedding planes; slightly alkaline.

The A horizon has value of 4 to 7 and chroma of 2, 3, 4, or 6. It is 4 to 10 inches thick. Reaction ranges from moderately acid to moderately alkaline.

The C horizon has value of 4 to 6 and chroma of 2, 3, 4, or 6. Texture is sand, fine sand, loamy fine sand, or loamy sand. Reaction ranges from moderately acid to moderately alkaline.

Deerford Series

The Deerford series consists of somewhat poorly drained, slowly permeable soils that formed in silty sediments with low sand content. These soils are on terraces and are subject to rare flooding. Slopes range from 0 to 2 percent. Soils of the Deerford series are fine-silty, mixed, thermic Albic Glossic Natraqualfs.

Deerford soils commonly are near Calhoun, Loring, and Olivier soils. Calhoun soils are in lower positions than the Deerford soils and are gray throughout the profile. Loring soils are in higher positions or more sloping positions than the Deerford soils. Olivier soils are in positions similar to those of the Deerford soils. Both Loring and Olivier soils have a fragipan.

Typical pedon of Deerford silt loam, 0 to 2 percent slopes; about 1.85 miles southwest of Ethel, 1 mile east of Black Creek, 2,000 feet south of Highway 955; sec. 19, T. 3 S., R. 1 E., East Feliciana Parish; USGS Jackson topographic quadrangle; latitude 30 degrees 46 minutes 13 seconds N.; longitude 91 degrees 9 minutes 39 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

E—6 to 10 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct dark yellowish brown (10YR 4/4) mottles; weak fine subangular blocky structure; friable; many fine roots; moderately acid; clear irregular boundary.

Bt/E—10 to 16 inches; yellowish brown (10YR 5/4) silty clay loam (Bt); common medium distinct yellowish brown (10YR 5/8) and few medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm; common fine roots; common vertical tongues of light brownish gray (10YR 6/2) silt loam (E) 2 to 4 inches wide; few faint clay films on surfaces of peds; few fine black concretions; moderately acid; clear wavy boundary.

Btn1—16 to 24 inches; light olive brown (2.5Y 5/6) silty clay loam; common medium distinct yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; gray (10YR 6/1) seams between prisms; few faint clay films on faces of peds; common fine iron and manganese concretions; moderately acid; gradual wavy boundary.

Btn2—24 to 34 inches; light olive brown (2.5Y 5/6) silt loam; common medium distinct yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few faint clay films on faces of peds; common fine black concretions; moderately acid; clear wavy boundary.

Btn3—34 to 60 inches; yellowish brown (10YR 5/6) silt loam; common coarse distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; few thin clay films on faces of peds; common fine black concretions; neutral.

The thickness of the solum ranges from 40 to 80 inches. Depth to a subhorizon with more than 15 percent exchangeable sodium ranges from 16 to 34 inches.

The Ap horizon has value of 4 to 6 and chroma of 2 to 4. It is 3 to 11 inches thick. Reaction ranges from very strongly acid to slightly acid, except where limed.

The E horizon and the E part of the Bt/E horizon have hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 or 3. Texture is silt or silt loam. Reaction ranges from very strongly acid to slightly acid.

The Bt horizon and the Bt part of the Bt/E horizon have value of 4 to 6 and chroma of 3, 4, or 6. In some pedons, the interior of peds has chroma of 1 or 2. Texture is silty clay loam or silt loam. Reaction ranges from very strongly acid to slightly acid in the upper part of the horizon and neutral to moderately alkaline in the lower part.

The BC and C horizons, where present, have hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1, 2, 3, 4, or 6. Texture is silt loam or silty clay loam. Reaction ranges from neutral to moderately alkaline.

Dexter Series

The Dexter series consists of well drained, moderately permeable soils that formed in loess and underlying loamy and sandy sediments. These soils are on terraces. Slopes range from 1 to 3 percent. Soils of the Dexter series are fine-silty, mixed, thermic Ultic Hapludalfs.

Dexter soils commonly are near Calhoun, Fluker, Kenefick, and Olivier soils. Calhoun soils are poorly drained and are in depressional areas and on flood plains. Fluker and Olivier soils are in lower positions than the Dexter soils and have a fragipan. Kenefick soils are in landscape positions similar to those of the Dexter soils and are fine-loamy.

Typical pedon of Dexter silt loam, 1 to 3 percent slopes; on Idlewild Experiment Station, 4,000 feet northeast of headquarters, 50 feet east of turnrow; Spanish Land Grant sec. 44, T. 3 S., R. 2 E., East Feliciana Parish; USGS Bluff Creek topographic quadrangle; latitude 30 degrees 49 minutes 12 seconds N.; longitude 91 degrees 57 minutes 26 seconds W.

Ap1—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many medium and fine roots; moderately acid; clear wavy boundary.

Ap2—5 to 9 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; friable; many medium and fine roots; slightly acid; clear wavy boundary.

Bt1—9 to 16 inches; strong brown (7.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; many fine roots; few faint clay films on faces of peds; moderately acid; gradual wavy boundary.

Bt2—16 to 26 inches; reddish brown (5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt3—26 to 31 inches; reddish brown (5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

2Bt4—31 to 41 inches; strong brown (7.5YR 4/6) loam; many coarse distinct dark brown (7.5YR 4/4) mottles; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

2Bt5—41 to 52 inches; dark brown (7.5YR 4/6) sandy loam; many coarse distinct strong brown (7.5YR 4/4) mottles; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; strongly acid; clear wavy boundary.

2Bt6—52 to 60 inches; brown (7.5YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; very pale brown (10YR 8/4) streaks about 2 inches wide; very strongly acid; clear wavy boundary.

2BC—60 to 67 inches; strong brown (7.5YR 5/6) sandy loam; common medium distinct dark brown (7.5YR 4/4) and few medium distinct very pale brown (10YR 8/4) mottles; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

2C—67 to 80 inches; strong brown (7.5YR 5/6) loamy sand; common medium distinct very pale brown (10YR 8/4) and dark yellowish brown (10YR 4/4) mottles; massive; friable; very strongly acid.

The thickness of the solum ranges from 32 to more than 60 inches. In at least one subhorizon within a depth of about 30 inches, exchangeable aluminum makes up 20 to 50 percent of the effective cation-exchange capacity.

The Ap horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4. It is 4 to 10 inches thick. Reaction ranges from very strongly acid to neutral.

The Bt and 2Bt horizons have hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 or 6. Texture is silt loam, silty clay loam, or clay loam in the Bt horizon and sandy loam or loam in the 2Bt horizon. Reaction ranges from very strongly acid to moderately acid.

The 2BC horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6. Texture is sandy loam, loam, clay loam, or sandy clay loam. Reaction ranges from very strongly acid to moderately acid.

The 2C horizon has colors similar to those of the 2BC horizon. Typically, the texture is fine sandy loam, loamy sand, or loamy fine sand, but ranges to sandy clay loam or clay loam. Reaction ranges from very strongly acid to moderately acid.

Fausse Series

The Fausse series consists of very poorly drained, very slowly permeable soils that formed in clayey alluvium. These soils are in low, ponded backswamp areas. They are subject to frequent flooding. Slopes are less than 1 percent. Soils of the Fausse series are very-fine, montmorillonitic, nonacid, thermic Typic Fluvaquents.

Fausse soils commonly are near Commerce, Sharkey, and Tunica soils. All of these soils are in higher positions than the Fausse soils. Commerce soils are fine-silty and somewhat poorly drained. Sharkey soils crack to a depth of 20 inches or more during dry periods in most years. Tunica soils have a loamy substratum.

Typical pedon of Fausse clay; 5.5 miles west of St. Francisville, 2.3 miles north of Mississippi River, 4,000 feet north of Lake Platt; sec. 14, T. 3 S., R. 4 W., West Feliciana Parish; USGS St. Francisville topographic quadrangle; latitude 30 degrees 46 minutes 43 seconds N.; longitude 91 degrees 28 minutes 53 seconds W.

A—0 to 5 inches; very dark gray (10YR 3/1) clay; weak fine subangular blocky structure; firm; very plastic; slightly alkaline; clear wavy boundary.

Bg1—5 to 20 inches; dark gray (10YR 4/1) clay; weak medium subangular blocky structure; firm; very plastic; slightly alkaline; gradual wavy boundary.

Bg2—20 to 32 inches; gray (10YR 5/1) clay; weak moderate subangular blocky structure; firm; very plastic; slightly alkaline; gradual wavy boundary.

Cg1—32 to 46 inches; gray (N 5/0) clay; few medium distinct dark yellowish brown (10YR 4/4) mottles; massive; firm; very plastic; slightly alkaline; gradual wavy boundary.

Cg2—46 to 60 inches; greenish gray (5BG 5/1) clay; massive; firm; very plastic; slightly alkaline.

Thickness of the solum ranges from 20 to 50 inches. The soil is saturated or above field capacity continuously in all layers below a depth of 24 inches in most years. Cracks do not form to a depth of 20 inches below the soil surface in most years.

Some pedons have a thin O horizon of muck on the surface. Where present, it has hue of 10YR, value of 2 or 3, and chroma of 1 or 2; or it has hue of 10YR, value of 4 and chroma of 1. Reaction ranges from moderately acid to neutral.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2; hue of 5Y, value of 4, and chroma of 1; or it is neutral and has value of 4. This horizon is less than 10 inches thick where the color is very dark gray or very dark grayish brown. Reaction ranges from moderately acid to slightly alkaline.

The Bg horizon has hue of 10YR, 5Y, or 5GY, value of 4 or 5, and chroma of 1; or it is neutral and has value of 4 or 5. Reaction ranges from slightly acid to moderately alkaline.

The Cg horizon has hue of 5Y, 5GY, or 5BG, value of 4 or 5, and chroma of 1; or it is neutral and has value of 5. Reaction ranges from neutral to moderately alkaline. Texture is clay or silty clay.

Feliciana Series

The Feliciana series consists of well drained, moderately permeable soils that formed in loess. These soils are on uplands. Slopes range from 0 to 40 percent. Soils of the Feliciana series are fine-silty, mixed, thermic Ultic Hapludalfs.

Feliciana soils commonly are near Calhoun, Loring, Natchez, and Olivier soils. Calhoun soils are in level areas, are poorly drained, and are gray throughout the profile. Loring and Olivier soils have less convex slopes than the Feliciana soils and have a fragipan. Natchez soils are coarse-silty and have steep, convex slopes.

Typical pedon of Feliciana silt loam, 0 to 1 percent slopes; 1.7 miles north of Delombre, 3,300 feet east of Thompson Creek, 150 feet south of Highway 964; Spanish Land Grant sec. 74, T. 3 S., R. 2 W., West Feliciana Parish; USGS Port Hudson topographic quadrangle; latitude 30 degrees 44 minutes 45 seconds N.; longitude 91 degrees 16 minutes 31 seconds W.

Ap—0 to 5 inches; brown (10YR 5/3) silt loam; weak fine granular structure; friable; many fine roots; few dark yellowish brown (10YR 4/4) root stains; extremely acid; clear smooth boundary.

Bt1—5 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—15 to 29 inches; dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; common fine roots; common light yellowish brown (10YR 6/4) silt coatings on peds; strongly acid; gradual wavy boundary.

Bt3—29 to 46 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine roots; common light yellowish brown (10YR 6/4) silt coatings on peds; moderately acid; gradual wavy boundary.

BC—46 to 65 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few light yellowish brown (10YR 6/4) silt coatings on peds; strongly acid.

The thickness of the solum ranges from 48 to 78 inches. In at least one subhorizon within a depth of 30 inches, exchangeable aluminum makes up 20 to 60 percent of the effective cation-exchange capacity.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 4; or it has hue of 7.5YR, value of 4 or 5, and chroma of 4. This horizon is 2 to 8 inches thick. Reaction ranges from extremely acid to moderately acid, except where limed. Some pedons have a thin A horizon. Where present, it has hue of 10YR or 7.5YR, value of 3, and chroma of 2 or 3.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma 4 or 6. Typically, clay content in the upper 20 inches of the Bt horizon is 25 to 30 percent, but ranges from 20 to 35 percent. The sand content is less than 5 percent to a depth of 48 inches or more. Black coats and stains on ped faces of the Bt horizon range from none to many. Gray or light yellowish brown silt coatings in cracks or on faces of peds range from none to common. Texture is silt loam or silty clay loam. Reaction ranges from very strongly acid to moderately acid.

The BC horizon has the same colors and reaction as the Bt horizon.

Some pedons have a C horizon.

Fluker Series

The Fluker series consists of somewhat poorly drained soils that have a fragipan. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. These soils formed in a silty mantle less than 4 feet thick and the underlying loamy sediments. They are on terraces and are subject to rare flooding. Slopes range from 0 to 2 percent. Soils of the Fluker series are fine-silty, siliceous, thermic Aquic Fraglossudalfs.

Fluker soils commonly are near Dexter, Guyton, Kenefick, Ochlockonee, Ouachita, and Toula soils. None of these soils has a fragipan, except the Toula soils. Dexter, Kenefick, and Toula soils are in higher positions than the Fluker soils. Guyton, Ochlockonee, and Ouachita soils are on flood plains. Toula soils do not have gray mottles in the upper part of the subsoil.

Typical pedon of Fluker silt loam, 0 to 2 percent slopes; about 1.9 miles southeast of Baker Cemetery, 1,050 feet east of Highway 63, 75 feet east of dirt road; Spanish Land Grant sec. 39, T. 3 S., R. 3 E., East Feliciana Parish; USGS Bluff Creek topographic quadrangle; latitude 30 degrees 47 minutes 28 seconds N.; longitude 90 degrees 53 minutes 32 seconds W.

Ap—0 to 6 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.

BE—6 to 12 inches; light yellowish brown (10YR 6/4) silt loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak fine subangular blocky structure; friable; few fine roots; few black concretions; strongly acid; clear wavy boundary.

Bt1—12 to 20 inches; yellowish brown (10YR 5/4) silty clay loam; common medium distinct yellowish brown (10YR 5/6) and many medium distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; firm; many fine and medium roots; few fine random discontinuous tubular pores; few faint clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—20 to 25 inches; yellowish brown (10YR 5/6) silty clay loam; common medium distinct yellowish brown (10YR 5/8) and light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm; few medium and coarse roots; many distinct clay films on faces of peds; few dark yellowish brown (10YR 4/4) stains on peds; common medium black concretions; strongly acid; clear wavy boundary.

Bt/E—25 to 31 inches; yellowish brown (10YR 5/4) silty clay loam (Bt); common medium distinct yellowish brown (10YR 5/8) and light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm; many faint clay films on faces of peds; common vertical tongues of light brownish gray (10YR 6/2) silt loam (E) about 1½ inches wide comprising 20 percent of the horizon; moderately acid; gradual wavy boundary.

2Btx1—31 to 37 inches; strong brown (7.5YR 5/6) loam; few medium distinct light brownish gray (10YR 6/2) mottles; moderate very coarse prismatic structure parting to weak medium and fine subangular blocky;

very firm and brittle; few fine roots in light gray seams; few fine random discontinuous tubular pores; few faint clay films on faces of peds; common vertical seams of light gray (10YR 7/1) silt loam 1/2 inch wide surround prisms; few dark yellowish brown (10YR 4/4) stains on peds; strongly acid; gradual wavy boundary.

2Btx2—37 to 49 inches; strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) loam; moderate very coarse prismatic structure parting to weak fine subangular blocky; very firm and brittle; few faint clay films on faces of peds; common vertical seams of light gray (10YR 7/1) silt loam 1/4 to 1/2 inch wide surround prisms; strongly acid; gradual wavy boundary.

2Btx3—49 to 60 inches; yellowish brown (10YR 5/6) sandy loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm and brittle; few faint clay films on faces of peds; common vertical seams of light brownish gray (10YR 6/2) fine sandy loam 1/4 to 1/2 inch wide surround prisms; very strongly acid, gradual wavy boundary.

The solum is more than 60 inches thick. Depth to the fragipan ranges from 18 to 40 inches. In at least one subhorizon within a depth of 30 inches, exchangeable aluminum makes up 50 percent or more of the effective cation-exchange capacity. Reaction ranges from extremely acid to moderately acid throughout the solum, except for the surface layer in areas that have been limed.

The Ap horizon has value of 3 to 5 and chroma of 1 to 4. It is 3 to 8 inches. Where value is 3, the Ap horizon is less than 6 inches thick.

The BE horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3, 4, 6, or 8. Mottles in shades of brown or gray range from few to many. Fine or very fine black and brown concretions range from none to common.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3, 4, 6, or 8. Texture is silt loam or silty clay loam. Mottles in shades of brown or gray range from few to many. Fine and very fine black and brown concretions range from none to common.

The Bt part of the Bt/E horizon has value of 5 or 6 and chroma of 2, 3, 4, or 6. The E part of the Bt/E horizon has value of 6 or 7. Some pedons have a grayish E horizon or a mottled E/B horizon. Vertical tongues of E material range in width from 1/4 inch to 2 inches and make up 10 to 30 percent of the horizon. Texture of the Bt part of the Bt/E horizon is silt loam or silty clay loam. Brownish mottles range from few to many and from fine to coarse.

The 2Btx horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, or 6; or it has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. Texture is silt loam, sandy clay loam, loam, fine sandy loam, or sandy loam. Mottles in shades of brown or gray range from few to many. Total sand content is typically greater than 25 percent.

Some pedons have a 2B or 2BC horizon below the 2Btx horizon. Where present, these horizons have the same range in colors and reaction as the 2Btx horizon. Texture is sandy loam, fine sandy loam, or loam.

Frost Series

The Frost series consists of poorly drained, slowly permeable soils that formed in loess or silty sediments. These soils are in ponded depressional areas on terraces. Slopes are less than 1 percent. Soils of the Frost series are fine-silty, mixed, thermic Typic Glossaqualfs.

The Frost soils in East and West Feliciana Parishes are taxadjuncts to the Frost series because they are Ultisols rather than Alfisols. This difference, however, does not significantly affect the use and management of the soils.

Frost soils commonly are near Calhoun, Loring, and Olivier soils. All of these soils are in higher positions than the Frost soils. Calhoun soils do not have dark gray coatings on the faces of peds. Loring and Olivier soils have a fragipan.

Typical pedon of Frost silt loam, ponded; about 1.3 miles northwest of Flower Hill, 3,800 feet west of Highway 66; Spanish Land Grant sec. 89, T. 2 S., R. 3 W., West Feliciana Parish; USGS Weyanoke topographic quadrangle; latitude 30 degrees 53 minutes 29 seconds N.; longitude 91 degrees 26 minutes 5 seconds W.

A—0 to 4 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.

Eg—4 to 15 inches; dark gray (10YR 4/1) silt loam; common fine distinct dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; friable; many medium and coarse roots; very strongly acid; gradual irregular boundary.

Btg/Eg—15 to 21 inches; 70 percent grayish brown (10YR 5/2) silt loam (Btg) and 30 percent gray (10YR 5/1) silt loam (Eg); common medium distinct yellowish brown (10YR 5/6 and 10YR 5/4) mottles; moderate very coarse prismatic structure parting to weak medium subangular blocky; firm; few fine roots; the E material occurs as tongues 2 to 5 inches wide between prisms; dark gray (10YR 4/1) coats on faces of peds; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Btg1—21 to 34 inches; gray (10YR 5/1) silty clay loam; common medium distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; common dark gray (10YR 4/1) coats on faces of peds; few faint clay films on faces of peds; strongly acid; clear wavy boundary.

Btg2—34 to 58 inches; gray (10YR 5/1) silt loam; common medium distinct dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; firm; common dark gray (10YR 4/1) coats on faces of peds; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

BCg—58 to 60 inches; gray (10YR 5/1) silt loam; common medium distinct dark yellowish brown (10YR 4/4) mottles; weak medium subangular blocky structure; firm; strongly acid.

The thickness of the solum ranges from 48 to 72 inches.

The A horizon has value of 3 to 5 and chroma of 1 or 2. It is 3 to 6 inches thick. Reaction ranges from very strongly acid to slightly acid.

The Eg horizon and Eg part of the Btg/Eg horizon have value of 4 to 6 and chroma of 1 or 2. Reaction ranges from very strongly acid to slightly acid. Tongues of the Eg horizon that range in width from 1 to 6 inches penetrate the Btg horizon and extend to depths of 20 inches or more.

The Btg horizon and the Btg part of the Btg/Eg horizon have hue of 10YR to 5Y, value of 5 or 6, and chroma of 1 or 2. Mottles are in shades of gray and brown. Peds are partially coated with dark gray (10YR 4/1), very dark gray (10YR 3/1), or black (10YR 2/1) material. Texture is silt loam or silty clay loam. Reaction ranges from very strongly acid to moderately acid in the upper part of the Btg horizon and from very strongly acid to moderately alkaline in the lower part.

The BCg horizon and the Cg horizon, where present, are mottled in shades of gray and brown. Texture is silt loam, silty clay loam, or silty clay. Reaction is the same as the Btg horizon.

Guyton Series

The Guyton series consists of poorly drained, slowly permeable soils that formed in loamy sediments. These soils are on flood plains and are subject to frequent flooding. Slopes are less than 1 percent. Soils of the Guyton series are fine-silty, siliceous, thermic Typic Glossaqualfs.

Guyton soils commonly are near Dexter, Fluker, Kenefick, Ochlockonee, and Ouachita soils. Dexter, Fluker, and Kenefick soils are on local stream terraces. Dexter and Kenefick soils are well drained. Fluker soils are somewhat poorly drained and have a fragipan. Ochlockonee and Ouachita soils are in higher positions on the flood plain than the Guyton soils, are well drained, and are brownish throughout the profile.

Typical pedon of Guyton silt loam, in an area of Ouachita, Ochlockonee, and Guyton soils, frequently flooded; about 2.1 miles northwest of Grangeville, 6,000 feet west of the Amite River, 100 feet south of dirt road; Spanish Land Grant sec. 56, T. 3 S., R. 3 E., East Feliciana Parish; USGS Pine Grove topographic quadrangle; latitude 30 degrees 44 minutes 47 seconds N.; longitude 90 degrees 52 minutes 3 seconds W.

A—0 to 5 inches, dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many medium and coarse roots; very strongly acid; abrupt smooth boundary.

Eg—5 to 25 inches; light brownish gray (10YR 6/2) silt loam; few medium distinct yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; friable; common medium and coarse roots; very strongly acid; gradual irregular boundary.

Btg/Eg—25 to 35 inches; gray (10YR 6/1) silty clay loam (Btg); common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; 30 percent gray (10YR 6/2) silt loam (Eg); common medium and coarse roots; very strongly acid; gradual irregular boundary.

Btg1—35 to 55 inches; gray (10YR 6/1) silty clay loam; many coarse prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; very strongly acid; clear wavy boundary.

Btg2—55 to 65 inches; gray (10YR 6/1) clay loam; many coarse prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; few medium brown concretions; very strongly acid; clear wavy boundary.

The thickness of the solum ranges from 50 to about 80 inches. In the particle-size control section, sand content, which is dominantly very fine sand, ranges from 10 to 40 percent. In at least one subhorizon within a depth of about 30 inches, exchangeable aluminum makes up 50 percent or more of the effective cation-exchange capacity.

The A horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 or 3. It is 3 to 8 inches thick. Reaction ranges from extremely acid to moderately acid, except for surface horizons that have been limed.

The Eg horizon and the Eg part of the Btg/Eg horizon have hue of 10YR or 2.5Y, value of 5 to 8, and chroma of 1 or 2. Texture is silt loam, loam, or very fine sandy loam. Reaction ranges from extremely acid to moderately acid.

The Btg horizon and the Btg part of the Btg/Eg horizon have hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. Texture is silt loam, silty clay loam, or clay loam. Reaction ranges from extremely acid to moderately acid.

The BCg or Cg horizons, where present, have the same colors as the Btg horizon. Texture is silt loam, silty clay loam, clay loam, or sandy clay loam. Reaction of the BCg horizon ranges from extremely acid to moderately acid. Reaction of the Cg horizon ranges from strongly acid to moderately alkaline.

Kenefick Series

The Kenefick series consists of well drained, moderately permeable soils that formed in loamy and sandy sediments. These soils are on terraces. Slopes range from 1 to 3 percent. Soils of the Kenefick series are fine-loamy, siliceous, thermic Ultic Hapludalfs.

Kenefick soils commonly are near Fluker, Guyton, Ochlockonee, and Ouachita soils. Fluker soils are in lower positions than the Kenefick soils and have a fragipan. Guyton, Ochlockonee, and Ouachita soils are on flood plains. Guyton soils are poorly drained, are fine-silty, and are gray throughout the profile. Ochlockonee and Ouachita soils are brownish throughout the profile and do not have an argillic horizon.

Typical pedon of Kenefick fine sandy loam, 1 to 3 percent slopes; about 2 miles northwest of Grangeville, 300 feet west of Highway 63, 100 feet south of dirt road; Spanish Land Grant sec. 56, T. 3 S., R. 3 E., East Feliciana Parish; USGS Pine Grove topographic quadrangle; latitude 30 degrees 44 minutes 46 seconds N.; longitude 90 degrees 51 minutes 35 seconds W.

Ap—0 to 4 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; many fine roots; slightly acid; clear smooth boundary.

A/B—4 to 8 inches; brown (10YR 5/3) fine sandy loam (A) and yellowish red (5YR 4/6) sandy clay loam (B); weak fine subangular blocky structure; friable; common fine roots; neutral; clear wavy boundary.

Bt1—8 to 22 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; slightly acid; clear wavy boundary.

Bt2—22 to 42 inches; yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; common distinct clay films on faces of peds; strongly acid; clear wavy boundary.

BC—42 to 58 inches; yellowish red (5YR 5/8) sandy loam; weak fine subangular blocky structure; friable; very strongly acid; clear wavy boundary.

C—58 to 70 inches; stratified light yellowish brown (10YR 6/4) and strong brown (7.5YR 5/8) loamy fine sand and fine sandy loam; massive; very friable; very strongly acid.

The thickness of the solum ranges from 40 to 70 inches.

The Ap horizon has value of 3 or 4 and chroma of 2 to 4. It is 3 to 8 inches thick. Reaction ranges from very strongly acid to slightly acid.

The A/B horizon and the E or E/B horizon, where present, have hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3 or 4. Texture is loamy fine sand or fine sandy loam. Reaction ranges from very strongly acid to neutral.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 or 8. Texture is sandy clay loam, clay loam, or loam. Average clay content ranges from 20 to 34 percent. Reaction ranges from very strongly acid to slightly acid.

The BC horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. Texture is sandy loam or fine sandy loam. Reaction ranges from very strongly acid to moderately acid.

The C horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4, 6, or 8. Texture is loamy fine sand, fine sandy loam, sand, or a combination of these textures in stratified layers. Some pedons have few to many pebbles. Reaction ranges from very strongly acid to moderately acid.

Latanier Series

The Latanier series consists of somewhat poorly drained, very slowly permeable soils. These soils formed in clayey and loamy alluvium. They are on flood plains and are subject to occasional flooding. Slopes range from 1 to 5 percent. The soils of the Latanier series are clayey over loamy, mixed, thermic Vertic Hapludolls.

Latanier soils commonly are near Moreland soils. Moreland soils are in lower positions than the Latanier soils and are fine-textured throughout.

Typical pedon of Latanier clay, in an area of Latanier-Moreland complex, undulating, occasionally flooded; 3,200 feet north of Lower Old River, 2,500 feet east of the Red River; Spanish Land Grant sec. 43, T. 1 N., R. 7 E., East Feliciana Parish; USGS Turnbull topographic quadrangle; latitude 31 degrees 1 minute 37 seconds N.; longitude 91 degrees 44 minutes 12 seconds W.

A—0 to 4 inches; dark brown (7.5YR 3/2) clay; weak medium subangular blocky structure; firm; common coarse and medium roots; slightly alkaline; clear wavy boundary.

Bw1—4 to 17 inches; dark reddish brown (5YR 3/3) clay; moderate medium subangular blocky structure; firm; common medium and coarse roots; strongly effervescent; slightly alkaline; gradual wavy boundary.

Bw2—17 to 27 inches; reddish brown (5YR 4/4) clay; moderate medium subangular blocky structure; firm; few coarse roots; slightly alkaline; clear wavy boundary.

2C—27 to 60 inches; reddish brown (5YR 4/3) stratified very fine sandy loam and silt loam; massive; friable; few coarse roots; slightly alkaline.

The thickness of the solum and depth to contrasting texture range from 20 to 40 inches. Reaction ranges from neutral to moderately alkaline throughout the solum.

The A horizon has hue of 5YR or 7.5YR and chroma of 2 or 3. It is 4 to 7 inches thick. Texture is clay, silty clay, or silty clay loam.

The Bw horizon has hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 2 to 4. Texture is clay or silty clay. In some pedons, the Bw horizon is calcareous throughout.

The 2C horizon is monotextured or stratified very fine sandy loam, silt loam, or silty clay loam.

Loring Series

The Loring series consists of moderately well drained soils that have a fragipan. Permeability is moderate in the upper part of the soil and slow in the fragipan. These soils formed in loess. They are on uplands. Slopes range from 1 to 8 percent. Soils of the Loring series are fine-silty, mixed, thermic Typic Fragiudalfs.

The Loring soils commonly are near Calhoun, Feliciana, and Olivier soils. Calhoun soils are in level areas and are poorly drained. Feliciana soils have more convex slopes than the Loring soils and do not have a fragipan. Olivier soils are in level to very gently sloping areas and have gray mottles in the upper part of the subsoil.

Typical pedon of Loring silt loam, 1 to 3 percent slopes; about 3.25 miles southwest of Ethel, 5,000 feet west of Black Creek, 100 feet east of dirt road; Spanish Land Grant sec. 97, T. 3 S., R. 1 W., West Feliciana Parish; USGS Jackson topographic quadrangle; latitude 30 degrees 46 minutes 47 seconds N., longitude 91 degrees 11 minutes 25 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; extremely acid; clear wavy boundary.

BE—6 to 10 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable; many fine roots; strongly acid; clear wavy boundary.

Bt—10 to 23 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few distinct clay films on faces of peds; common light yellowish brown (10YR 6/4) silt coats on faces of peds; slightly acid; clear wavy boundary.

Btx1—23 to 28 inches; dark yellowish brown (10YR 4/4) silt loam; moderate very coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle prisms comprise 70 percent of the volume; few fine roots in seams; common fine random discontinuous tubular pores; pale brown (10YR 6/3) silt loam seams 1/4 inch wide between prisms; few distinct clay films on peds within prisms and on prisms; common fine black concretions; very strongly acid; gradual wavy boundary.

Btx2—28 to 39 inches; dark yellowish brown (10YR 4/4) silt loam; moderate very coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle prisms comprise 70 percent of the volume; few fine roots in seams; common fine random discontinuous tubular pores; light brownish gray (10YR 6/2) silt loam seams 1/2 inch wide between prisms; few distinct clay films on peds within prisms and on prisms; common fine black concretions; very strongly acid; gradual wavy boundary.

Btx3—39 to 51 inches; yellowish brown (10YR 5/4) silt loam; moderate very coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle prisms comprise 70 percent of the volume; few fine roots in seams; common fine random discontinuous tubular pores; light brownish gray (10YR 6/2) silt loam seams 1/4 inch wide between prisms; few faint clay films on peds within prisms and on prisms; common fine black concretions; strongly acid; gradual wavy boundary.

C—51 to 60 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct gray (10YR 5/1) mottles; massive; friable; strongly acid.

The thickness of the solum ranges from 45 to 75 inches. Depth to the fragipan ranges from 22 to 35 inches. Base saturation ranges from 35 to 65 percent in the B and C horizons. Sand content throughout the solum is usually less than 5 percent, but may range up to 15 percent. In at least one subhorizon within a depth of 30 inches, exchangeable aluminum makes up 20 to 60 percent of the effective cation-exchange capacity.

The Ap horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2, 3, 4, or 6. It is 4 to 8 inches thick. Reaction ranges from very strongly acid to moderately acid.

The BE and Bt horizons have hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6. In some pedons, the lower part of the Bt horizon has gray mottles. Texture is silt loam or silty clay loam. Reaction ranges from very strongly acid to slightly acid.

The Btx and C horizons have the same color, texture, and reaction as the Bt horizon. Mottles in shades of yellow, brown, or gray range from none to many. Reaction ranges from very strongly acid to moderately acid.

Lytle Series

The Lytle series consists of well drained, moderately permeable soils that formed in a mantle of loess about 2 to 3 feet thick and in the underlying loamy and clayey sediments. These soils are on uplands. Slopes range from 1 to 8 percent. Soils of the Lytle series are fine-loamy, siliceous, thermic Typic Paleudults.

Lytle soils commonly are near Ruston, Smithdale, and Tangi soils. Ruston and Tangi soils are in positions similar to those of the Lytle soils. Smithdale soils have steeper slopes. Ruston and Smithdale soils have more than 15 percent fine, medium, and coarse sand in the upper part of the argillic horizon. Tangi soils have a fragipan.

Typical pedon of Lytle silt loam, 3 to 8 percent slopes; about 1.9 miles southeast of Woodland, 1,800 feet south of Highway 432, 100 feet east of dirt road; Spanish Land Grant sec. 39, T. 1 S., R. 3 E., East Feliciana Parish; USGS Woodland topographic quadrangle; latitude 30 degrees 56 minutes 39 seconds N.; longitude 90 degrees 54 minutes 19 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine and medium and few coarse roots; very strongly acid; clear smooth boundary.

E—6 to 11 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; many fine and medium and few coarse roots; many fine pores; very strongly acid; abrupt smooth boundary.

Bt1—11 to 19 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; many fine, medium, and coarse pores; common distinct clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—19 to 28 inches; reddish brown (5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine, medium, and coarse roots; few fine pores; common distinct clay films on faces of peds; strongly acid; clear wavy boundary.

Bt3—28 to 38 inches; yellowish red (5YR 4/6) loam; moderate medium subangular blocky structure; friable; few medium and coarse roots; common strong brown (7.5YR 5/6) uncoated sand grains; common distinct clay films on faces of peds; few fine pores; strongly acid; clear wavy boundary.

2Bt/E—38 to 46 inches; yellowish red (5YR 4/6) loam (2Bt); weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common fine, medium, and coarse roots; common fine pores; 20 to 30 percent strong brown (7.5YR 5/6) uncoated sand grains (E); common distinct clay films on faces of peds; strongly acid; clear wavy boundary.

2B´t1—46 to 56 inches; red (2.5YR 4/6) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common fine pores; common strong brown (7.5YR 5/6) uncoated sand grains; common distinct clay films on faces of peds; strongly acid; clear wavy boundary.

2B´t2—56 to 67 inches; red (2.5YR 4/8) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine pores; many pockets of strong brown (7.5YR 5/6) uncoated sand grains; common distinct clay films on faces of peds; strongly acid; clear wavy boundary.

2B´t3—67 to 81 inches; red (2.5YR 4/6) sandy clay; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common distinct clay films on faces of peds; few fine pores; strongly acid.

Solum thickness exceeds 60 inches. Reaction ranges from very strongly acid to moderately acid throughout the solum, except in areas that have been limed. In most pedons, in at least one subhorizon within a depth of 30 inches, exchangeable aluminum makes up 20 to 70 percent of the effective cation-exchange capacity.

The Ap horizon has value of 3 to 5 and chroma of 1 to 3. It is 4 to 9 inches thick. Where value is 3, the Ap horizon is less than 6 inches thick.

The E horizon has value of 5 or 6 and chroma of 3 or 4. Texture is silt loam or very fine sandy loam.

The Bt horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4, 6, or 8. Texture is silt loam, loam, or silty clay loam. Clay content commonly is 20 to 30 percent, but ranges from 18 to 35 percent. Brittle bodies near the contact of the loess and underlying sediments make up from 10 to 40 percent of the volume of the horizon.

The 2Bt part of the 2Bt/E horizon has the same colors as the Bt horizon. The E part of the 2Bt/E horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3, 4, or 6. Texture is sandy loam, loam, clay loam, or silt loam.

The 2B´t horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4, 6, or 8. Texture is loam, sandy clay loam, clay loam, or sandy clay. Most pedons have few to many pockets of sand or loamy sand in shades of brown or yellow.

Moreland Series

The Moreland series consists of somewhat poorly drained, very slowly permeable soils. These soils formed in clayey alluvium. They are on flood plains and are subject to occasional flooding. Slopes ranges from 0 to 1 percent. Soils of the Moreland series are fine, mixed, thermic Vertic Hapludolls.

Moreland soils commonly are near Latanier and Sharkey soils. Latanier soils are in slightly higher positions than the Moreland soils and have a loamy substratum. Sharkey soils are in positions similar to those of the Moreland soils and are dominantly gray throughout the profile.

Typical pedon of Moreland clay, in an area of Latanier-Moreland complex, undulating, occasionally flooded; about 3,200 feet north of Lower Old River, 2,600 feet east of the Red River; Spanish Land Grant sec. 43, T. 1 N., R. 7 E., East Feliciana Parish; Turnbull topographic quadrangle; latitude 31 degrees 1 minute 33 seconds N.; longitude 91 degrees 44 minutes 4 seconds W.

Ap—0 to 10 inches; dark reddish brown (5YR 3/2) clay; moderate medium granular structure; firm; few fine roots; slightly alkaline; clear wavy boundary.

Bw1—10 to 26 inches; reddish brown (5YR 4/4) clay;

moderate fine subangular blocky structure; firm; few fine roots; moderately alkaline; clear wavy boundary.

Bw2—26 to 30 inches; reddish brown (5YR 4/4) clay; moderate fine subangular blocky structure; firm; few fine roots; few seams of dark reddish brown (5YR 3/2) silty clay loam; moderately alkaline; clear wavy boundary.

Bss—30 to 45 inches; reddish brown (5YR 4/4) clay; moderate medium subangular blocky structure; firm; few slickensides; strongly effervescent; seams of dark reddish brown (10YR 3/2) silty clay loam; moderately alkaline; clear wavy boundary.

BC—45 to 60 inches; dark reddish brown (5YR 3/2) clay; weak fine subangular blocky structure; very dark grayish brown (10YR 3/2) silt loam in cracks; moderately alkaline.

The Ap horizon has hue of 5YR or 7.5YR and chroma of 2 or 3. It is 6 to 16 inches thick. Reaction ranges from slightly acid to slightly alkaline.

The Bw and Bss horizons have hue of 5YR or 2.5YR, value of 3 or 4, and chroma of 3 or 4. Texture is clay or silty clay. Reaction ranges from neutral to moderately alkaline. Some pedons have thin silt loam or silty clay loam strata in the B horizon.

The BC horizon has the same colors as the Bw horizon. Texture is clay, silty clay, or silty clay loam. Reaction ranges from neutral to moderately alkaline.

Morganfield Series

The Morganfield series consists of well drained, moderately permeable soils that formed in loamy alluvium. These soils are on flood plains and are frequently flooded. Slopes range from 0 to 2 percent. Soils of the Morganfield series are coarse-silty, mixed, nonacid, thermic Typic Udifluvents.

Morganfield soils commonly are near Bigbee, Calhoun, and Weyanoke soils. Bigbee soils are on natural levees along stream banks and are sandy throughout the profile. Calhoun and Weyanoke soils are on terraces. Calhoun soils are poorly drained and have an argillic horizon. Weyanoke soils have an organic matter content that decreases regularly with depth.

Typical pedon of Morganfield silt loam, in an area of Morganfield and Bigbee soils, frequently flooded; about 1.5 miles northwest of Bains, 200 feet north of Highway 66, 15 feet west of Bayou Sara; Spanish Land Grant sec. 40, T. 2 S., R. 3 W., West Feliciana Parish; USGS St. Francisville topographic quadrangle; latitude 30 degrees 50 minutes 42 seconds N.; longitude 91 degrees 24 minutes 19 seconds W.

A—0 to 4 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; common medium and coarse roots; slightly acid; clear smooth boundary.

C1—4 to 26 inches; yellowish brown (10YR 5/4) silt; massive; very friable; common medium and coarse roots; common bedding planes; moderately acid; clear wavy boundary.

C2—26 to 50 inches; yellowish brown (10YR 5/4) silt loam; common medium faint pale brown (10YR 6/3) mottles; massive; very friable; common coarse roots; moderately acid; clear wavy boundary.

C3—50 to 60 inches; yellowish brown (10YR 5/4) very fine sandy loam; common medium faint pale brown (10YR 6/3) mottles; massive; very friable; few coarse roots; common medium black concretions; moderately acid.

Reaction ranges from moderately acid to slightly alkaline throughout the soil.

The A horizon has value of 4 or 5 and chroma of 2 to 4. Texture is silt, silt loam, or loam.

The C horizon has value of 4 or 5 and chroma of 3 or 4. Texture is silt, silt loam, or very fine sandy loam. Some pedons have mottles with chroma of 2 below a depth of 20 inches. Clay content of the 10- to 40-inch control section ranges from 5 to 18 percent, and total sand content ranges from 5 to 45 percent.

Natchez Series

The Natchez series consists of well drained, moderately permeable soils that formed in loess. These soils are on uplands. Slopes range from 12 to 60 percent. Soils of the Natchez series are coarse-silty, mixed, thermic Typic Eutrochrepts.

Natchez soils are similar to Weyanoke soils and commonly are near Feliciana and Loring soils. Feliciana and Loring soils are on upper side slopes and ridgetops and are fine-silty. Weyanoke soils are on stream terraces and do not have carbonates in the profile.

Typical pedon of Natchez silt loam, in an area of Feliciana and Natchez silt loams, steep; about 3.4 miles northeast of Tunica, 100 feet north of Highway 66, 500 feet east of Tunica Bayou, 100 feet east of a gravel road; Spanish Land Grant sec. 79, T. 1 S., R. 4 W., West Feliciana Parish; USGS Tunica topographic quadrangle; latitude 30 degrees 58 minutes 11 seconds N.; longitude 91 degrees 31 minutes 25 seconds W.

A—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; few medium and coarse roots; moderately acid; clear smooth boundary.

E—2 to 5 inches; yellowish brown (10YR 5/4) silt loam; weak fine granular structure; friable; few medium and coarse roots; very strongly acid; clear smooth boundary.

Bw1—5 to 11 inches; yellowish brown (10YR 5/6) silt loam;

weak medium subangular blocky structure; friable; few coarse roots; very strongly acid; gradual wavy boundary.

Bw2—11 to 41 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few coarse roots; strongly acid; gradual wavy boundary.

C—41 to 60 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; few medium calcium carbonate concretions; few shell fragments; slightly alkaline.

The thickness of the solum ranges from 18 to 48 inches.

The A horizon has value of 3 or 4 and chroma of 1 or 2. Reaction ranges from strongly acid to neutral.

The E horizon has value of 4 or 5 and chroma of 2 to 4. Texture is silt or silt loam. Reaction ranges from very strongly acid to neutral.

The Bw horizon has value of 4 to 6 and chroma of 3, 4, or 6. Texture is silt or silt loam. Reaction ranges from very strongly acid to neutral.

The C horizon has the same texture and color as the Bw horizon. Content of shells or concretions of carbonates range from few to many. Reaction ranges from neutral to moderately alkaline.

Ochlockonee Series

The Ochlockonee series consists of well drained, moderately permeable soils that formed in loamy alluvium. These soils are on flood plains and are subject to frequent flooding. Slopes range from 1 to 3 percent. Soils of the Ochlockonee series are coarse-loamy, siliceous, acid, thermic Typic Udifluvents.

Ochlockonee soils are similar to Crevasse soils and commonly are near Dexter, Fluker, Guyton, Kenefick, and Ouachita soils. Crevasse soils are on the flood plains of the Mississippi River and are sandy throughout the profile. Dexter, Fluker, and Kenefick soils are on terraces. Guyton soils are in lower positions than the Ochlockonee soils. Ouachita soils are in positions similar to those of the Ochlockonee soils. Dexter, Fluker, Guyton, and Ouachita soils are fine-silty. Kenefick soils are fine-loamy.

Typical pedon of Ochlockonee fine sandy loam, in an area of Ouachita, Ochlockonee, and Guyton soils, frequently flooded; about 6.5 miles west of Darlington, 4,000 feet west of the Amite River, 150 feet south of Highway 10; Spanish Land Grant sec. 54, T. 2 S., R. 3 E., East Feliciana Parish; USGS Chipola topographic quadrangle; latitude 30 degrees 53 minutes 44 seconds N.; longitude 90 degrees 51 minutes 1 second W.

A—0 to 6 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; common medium and fine roots; extremely acid; clear wavy boundary.

C1—6 to 26 inches; yellowish brown (10YR 5/4) sandy loam; massive; very friable; common fine and medium roots; extremely acid; gradual wavy boundary.

C2—26 to 42 inches; light yellowish brown (10YR 6/4) loam; massive; very friable; few fine roots; very strongly acid; gradual wavy boundary.

C3—42 to 60 inches; dark yellowish brown (10YR 4/6) sandy loam; massive; very friable; few fine roots; few fine distinct pale brown (10YR 6/3) uncoated sand grains; extremely acid.

Reaction is extremely acid to strongly acid throughout the soil, except for A horizons that have been limed. In at least one subhorizon within a depth of 30 inches below the soil surface, exchangeable aluminum makes up 50 percent or more of the effective cation-exchange capacity.

The A horizon has hue of 10YR or 7.5YR, value of 3 to 6, and chroma of 2 to 4. It is 4 to 10 inches thick.

The C horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3, 4, or 6. Some pedons have mottles with value of 4 to 6 and chroma of 1 or 2 below a depth of 20 inches. Strata within the C horizon range from loamy sand to silty clay loam, but the 10- to 40-inch control section texture is sandy loam, silt loam, or loam and contains less than 18 percent clay and more than 15 percent sand coarser than very fine sand.

Olivier Series

The Olivier series consists of somewhat poorly drained, slowly permeable soils that formed in loess. These soils are on terraces. Slopes range from 0 to 3 percent. Soils of the Olivier series are fine-silty, mixed, thermic Aquic Fragiudalfs.

Olivier soils commonly are near Calhoun, Feliciana, and Loring soils. Calhoun soils are in lower positions than the Olivier soils, and Feliciana and Loring soils are in higher positions. Neither the Calhoun soils nor the Feliciana soils have a fragipan. Loring soils do not have grayish mottles in the upper part of the subsoil.

Typical pedon of Olivier silt loam, 1 to 3 percent slopes; about 1.5 miles southwest of Evergreen Church, 1,500 feet north of Haynes Cemetery; Spanish Land Grant sec. 107, T. 3 S., R. 1 W., West Feliciana Parish; USGS Jackson topographic quadrangle; latitude 30 degrees 45 minutes 58 seconds N.; longitude 91 degrees 10 minutes 33 seconds W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine roots; very strongly acid; abrupt smooth boundary.

E—7 to 12 inches; light yellowish brown (10YR 6/4) silt loam; common medium distinct yellowish brown (10YR 5/6) and common fine distinct light brownish gray (10YR 6/2) mottles; weak fine subangular blocky structure; friable; few fine roots; few fine pores; few fine black stains; strongly acid; clear wavy boundary.

Bt1—12 to 19 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct yellowish brown (10YR 5/6) and common fine distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; common distinct clay films on faces of peds; few fine roots; few fine pores; few fine black stains; strongly acid; clear wavy boundary.

Bt2—19 to 26 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct strong brown (7.5YR 5/6) and few medium faint light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; few fine black stains; strongly acid; gradual wavy boundary.

Btx1—26 to 32 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct yellowish brown (10YR 5/6) and common medium distinct strong brown (7.5YR 5/6) mottles; weak very coarse prismatic structure; firm and brittle; few fine pores; about 20 percent light brownish gray (10YR 6/2) silt loam seams about 1/4 inch wide between vertical faces of prisms; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Btx2—32 to 60 inches; yellowish brown (10YR 5/4) silt loam; moderate very coarse prismatic structure; firm and brittle; few fine pores; about 20 percent light brownish gray (10YR 6/2) silt loam seams about 1/2 inch wide between vertical faces of prisms; few faint clay films on faces of peds; strongly acid.

The thickness of the solum ranges from 48 to 96 inches. Depth to the fragipan ranges from 13 to 42 inches. The sand content, which is dominantly very fine sand, is less than 10 percent. In at least one subhorizon within 30 inches below the soil surface, exchangeable aluminum makes up 20 to 50 percent of the effective cation-exchange capacity.

The Ap horizon has value of 4 or 5 and chroma of 1 to 3. It is 4 to 7 inches thick. Reaction ranges from very strongly acid to slightly acid.

The E horizon has value of 5 or 6 and chroma of 2 to 4. Reaction ranges from very strongly acid to moderately acid.

The Bt horizon has value of 5 or 6 and chroma of 3, 4, 6, or 8. Texture is silt loam or silty clay loam. Reaction is very strongly acid or strongly acid.

Some pedons have a B/E horizon. Where present, the Bt part of the B/E horizon has the same colors and texture as the Bt horizon. The E part of the B/E horizon has the same colors and texture as the E horizon. Reaction is very strongly acid or strongly acid.

The Btx horizon has value of 4 to 5 and chroma of 3, 4, 6, or 8. Texture is silt loam or silty clay loam. Reaction ranges from very strongly acid to moderately acid.

Ouachita Series

The Ouachita series consists of well drained, moderately slowly permeable soils that formed in loamy alluvium. These soils are on flood plains and are frequently flooded. Slopes range from 1 to 3 percent. Soils of the Ouachita series are fine-silty, siliceous, thermic Fluventic Dystrochrepts.

Ouachita soils commonly are near Dexter, Fluker, Guyton, Kenefick, and Ochlockonee soils. Dexter, Fluker, and Kenefick soils are on terraces and have an argillic horizon. Guyton soils are in lower positions on the flood plain than the Ouachita soils and are gray throughout the profile. Ochlockonee soils are in positions similar to those of the Ouachita soils and are coarse-loamy.

Typical pedon of Ouachita silt loam, in an area of Ouachita, Ochlockonee, and Guyton soils, frequently flooded; about 6.5 miles west of Darlington, 400 feet west of the Amite River, 250 feet south of Highway 10; Spanish Land Grant sec. 55, T. 2 S., R. 3 E., East Feliciana Parish; USGS Chipola topographic quadrangle; latitude 30 degrees 53 minutes 16 seconds N.; longitude 90 degrees 51 minutes 27 seconds W.

A—0 to 7 inches; brown (10YR 5/3) silt loam; weak fine granular structure; friable; many fine, medium, and coarse roots; extremely acid; clear smooth boundary.

Bw1—7 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; friable; many medium and coarse roots; extremely acid; clear wavy boundary.

Bw2—15 to 24 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; common medium and coarse roots; very strongly acid; clear wavy boundary.

Bw3—24 to 40 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; common medium and coarse roots; light yellowish brown (10YR 6/4) material in root channels; very strongly acid; gradual wavy boundary.

BC—40 to 48 inches; yellowish brown (10YR 5/8) silt loam; common medium distinct strong brown (7.5YR 5/6), common medium prominent and pale brown (10YR 6/3), and common coarse distinct dark yellowish brown (10YR 4/4) mottles; weak medium subangular blocky structure; friable; few coarse roots; very strongly acid; clear wavy boundary.

2C—48 to 60 inches; mottled yellowish brown (10YR 5/4, 5/6) and light brownish gray (10YR 6/2) fine sandy loam; massive; friable; common fine and medium gravel; very strongly acid.

The thickness of the solum ranges from 40 to 80 inches. The content of organic matter decreases irregularly with depth. In at least one subhorizon within 30 inches of the soil surface, exchangeable aluminum makes up 50 percent or more of the effective cation-exchange capacity.

The A horizon has value of 4 and chroma of 2 to 4 or value of 5 and chroma of 3. It is 1 to 7 inches thick. Reaction ranges from extremely acid to moderately acid, except where the surface layer has been limed.

The Bw horizon has value of 4 or 5 and chroma of 3, 4, 6, or 8. Texture is silt loam, loam, or silty clay loam. Reaction ranges from extremely acid to strongly acid.

Some pedons have a thin 2Ab or 2Egb horizon. Where present, these horizons are variable in texture and color. Typically, texture is silt loam, sandy loam, or loamy sand. Reaction is very strongly acid or strongly acid.

The BC horizon has the same colors as the Bw horizon. Mottles are in shades of brown or gray and range from none to common. Texture is silt loam, loam, or fine sandy loam. Reaction is very strongly acid or strongly acid.

The 2C horizon has the same colors as the Bw horizon, or it is mottled with these colors in shades of gray. Texture is fine sandy loam, loam, or silt loam. Reaction is very strongly acid or strongly acid.

Robinsonville Series

The Robinsonville series consists of well drained soils that formed in loamy and sandy alluvium. Permeability is moderate or moderately rapid. These soils are on the flood plains of the Mississippi River and its distributaries. They are subject to occasional flooding. Slopes range from 1 to 5 percent. Soils of the Robinsonville series are coarse-loamy, mixed, nonacid, thermic Typic Udifluvents.

Robinsonville soils commonly are near Commerce and Convent soils. Both of these soils are in lower positions than the Robinsonville soils. Commerce soils are fine-silty, and Convent soils are coarse-silty.

Typical pedon of Robinsonville fine sandy loam, in an area of Robinsonville and Convent soils, occasionally flooded; about 9.1 miles northwest of St. Francisville, 200 feet east of the Mississippi River, 5,300 feet northwest of Ratcliff Lake; Spanish Land Grant sec. 45, T. 2 S., R. 4 W., West Feliciana Parish; USGS Lacour topographic quadrangle; latitude 30 degrees 51 minutes 51 seconds N.; longitude 91 degrees 30 minutes 37 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; many fine roots; slightly alkaline; clear smooth boundary.

C1—7 to 17 inches; brown (10YR 5/3) loamy fine sand; massive; very friable; many fine roots; moderately alkaline; clear smooth boundary.

C2—17 to 24 inches; brown (10YR 4/3) fine sandy loam; massive; friable; moderately alkaline; clear smooth boundary.

C3—24 to 40 inches; brown (10YR 5/3) loamy fine sand; massive; very friable; moderately alkaline; clear smooth boundary.

C4—40 to 45 inches; brown (10YR 4/3) fine sandy loam; massive; friable; moderately alkaline; clear smooth boundary.

C5—45 to 50 inches; brown (10YR 4/3) fine sandy loam; few fine distinct strong brown (7.5YR 5/6) mottles; massive; friable; moderately alkaline; clear smooth boundary.

C6—50 to 60 inches; brown (10YR 5/3) loamy fine sand; massive; friable; moderately alkaline.

The Ap horizon has value of 3 to 5 and chroma 2 to 4. It is 4 to 8 inches thick. Where value is less than 3.5, the Ap horizon is less than 6 inches thick. Reaction ranges from slightly acid to moderately alkaline.

The C horizon has value of 4 and chroma of 2 to 4 or value of 5 or 6 and chroma of 3 or 4. Mottles having chroma of 2 or less, if present, are below a depth of 20 inches. Texture is stratified fine sandy loam, silt loam, loam, very fine sandy loam, loamy very fine sand, or loamy fine sand. The strata vary in thickness and arrangement within short distances. The 10- to 40-inch control section has 5 to 18 percent clay. Some pedons have a buried soil below a depth of 20 inches. Reaction ranges from slightly acid to moderately alkaline.

Ruston Series

The Ruston series consists of well drained, moderately permeable soils that formed in loamy sediments. These soils are on uplands. Slopes range from 1 to 5 percent. Soils of the Ruston series are fine-loamy, siliceous, thermic Typic Paleudults.

Ruston soils commonly are near Lytle, Smithdale, and Tangi soils. Lytle and Tangi soils are on sloping positions similar to those of the Ruston soils. Lytle soils contain less total sand in the upper part of the solum than the Ruston soils. Tangi soils are fine-silty. Smithdale soils are on steeper slopes and do not have a bisequum in the profile.

Typical pedon of Ruston sandy loam, 1 to 5 percent slopes; about 4.5 miles east of Norwood, 3,200 feet southeast of Richland Creek, 1,550 feet northeast of parish road; Spanish Land Grant sec. 88, T. 1 S., R. 2 E., East Feliciana Parish; USGS Clinton topographic quadrangle; latitude 30 degrees 58 minutes 2 seconds N.; longitude 91 degrees 1 minute 48 seconds W.

A—0 to 2 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; friable; common fine and medium roots; extremely acid; clear smooth boundary.

E—2 to 4 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; friable; common fine and medium roots; extremely acid; clear smooth boundary.

Bt1—4 to 24 inches; yellowish red (5YR 5/8) clay loam, moderate medium subangular blocky structure; firm; common medium, fine, and coarse roots; many distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—24 to 35 inches; yellowish red (5YR 5/8) clay loam; weak fine subangular blocky structure; friable; few coarse roots; many distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt/E—35 to 45 inches; yellowish red (5YR 5/6) sandy loam (Bt) makes up 70 percent of the horizon; weak medium subangular blocky structure; friable; pockets of yellowish brown (10YR 5/4) sandy loam (E) about 1½ inches in diameter make up 30 percent of the horizon; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

B´t—45 to 60 inches; yellowish red (5YR 5/8) clay loam; weak medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; few pockets of strong brown (7.5YR 5/6) uncoated sand grains; very strongly acid.

The solum is more than 60 inches thick. The B/E horizon is definitive for the series. In at least one subhorizon within a depth of about 30 inches below the soil surface, exchangeable aluminum makes up 50 percent or more of the effective cation-exchange capacity.

The A horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 2 to 4. It is 2 to 6 inches thick. Reaction ranges from extremely acid to slightly acid.

The E horizon has value of 5 or 6 and chroma of 3 or 4. Texture is fine sandy loam or sandy loam. Reaction ranges from extremely acid to slightly acid. Some pedons have a thin BE horizon.

The Bt horizon, Bt part of the Bt/E horizon, and the B´t horizon have hue of 5YR or 2.5YR, value of 4 to 6, and chroma of 4, 6, or 8. Texture is sandy clay loam, fine sandy loam, loam, or clay loam. The E part of the Bt/E horizon has value of 5 or 6 and chroma of 3 or 4. Texture is fine sandy loam, clay loam, or sandy loam. Some subhorizons contain as much as 15 percent, by volume, of gravel. Reaction ranges from very strongly acid to moderately acid.

Sharkey Series

The Sharkey series consists of poorly drained, very slowly permeable soils that formed in clayey alluvium. These soils are on flood plains of the Mississippi River and its distributaries. Unless protected by earthen levees, these soils are subject to rare or frequent flooding. Slopes are less than 1 percent. Soils of the Sharkey series are very-fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts.

Sharkey soils commonly are near Commerce, Fausse, and Tunica soils. Commerce and Tunica soils are in slightly higher positions than the Sharkey soils. Commerce soils are fine-silty. Tunica soils have a loamy substratum. Fausse soils are in lower positions than the Sharkey soils, are very poorly drained, remain wet throughout the year, and do not crack to a depth of 20 inches.

Typical pedon of Sharkey clay; on Louisiana State Penitentiary Farm at Angola, 460 feet west of drainage pumping station, 1,900 feet north of levee; southeast corner of Spanish Land Grant sec. 56, T. 1 S., R. 5 W., West Feliciana Parish; USGS Tunica topographic quadrangle; latitude 30 degrees 56 minutes 39 seconds N.; longitude 91 degrees 35 minutes 37 seconds W.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) clay; weak fine and very fine subangular blocky structure; firm; very plastic; moderately acid; clear smooth boundary.

A—6 to 9 inches; very dark grayish brown (10YR 3/2) clay; few fine distinct dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; very firm; very plastic; neutral; clear smooth boundary.

Bg1—9 to 19 inches; dark gray (10YR 4/1) clay; common fine distinct dark yellowish brown (10YR 4/4) mottles; moderate medium and coarse subangular blocky structure; very firm; very plastic; shiny faces on peds; neutral; clear smooth boundary.

Bg2—19 to 27 inches; dark gray (10YR 4/1) clay; common fine distinct dark yellowish brown (10YR 4/4) mottles; moderate very coarse prismatic structure; very firm; very plastic; few shiny pressure faces; neutral; gradual wavy boundary.

Bssg1—27 to 42 inches; dark gray (10YR 4/1) clay; common fine distinct dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; very firm; very plastic; common slickensides that do not intersect; shiny faces on peds; slightly alkaline; gradual wavy boundary.

Bssg2—42 to 60 inches; gray (10YR 5/1) clay; common medium distinct dark brown (5YR 3/4) and dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; very firm; very plastic; common slickensides that do not intersect; shiny faces on peds; slightly alkaline.

The thickness of the solum ranges from 36 to more than 60 inches. Cracks, ½ inch to 2 inches wide, develop to a depth of 20 inches or more during dry periods of most years.

The Ap and A horizons have value of 2 and chroma of 1 or value of 3 or 4 and chroma of 1 or 2. Texture is clay or silty clay. The combined thickness of the Ap and A horizons ranges from 4 to 15 inches. Reaction ranges from strongly acid to moderately alkaline.

The Bg and Bssg horizons have hue of 10YR or 5Y, value of 4 to 6, and chroma of 1 or 2; or they are neutral and have value of 4 or 5. Reaction ranges from moderately acid to moderately alkaline. Some pedons have a thin silty clay loam or silt loam B subhorizon. Other pedons have a clayey, buried A horizon below a depth of 20 inches.

Some pedons have a Cg horizon. Where present, it has the same colors as the Bg horizon. Texture is clay or silty clay. Reaction ranges from neutral to moderately alkaline.

Smithdale Series

The Smithdale series consists of well drained, moderately permeable soils that formed in loamy sediments. These soils are on uplands. Slopes range from 8 to 30 percent. Soils of the Smithdale series are fine-loamy, siliceous, thermic Typic Hapludults.

Smithdale soils commonly are near Lytle, Ruston, and Tangi soils. All of these soils are on less sloping positions than the Smithdale soils. Lytle and Tangi soils are fine-silty. Ruston soils have a bisequum in the solum.

Typical pedon of Smithdale sandy loam, 8 to 30 percent slopes; about 1 mile west of the Amite River, 4,300 feet north of Hatcherville, 150 feet west of parish road; Spanish Land Grant sec. 38, T. 2 S., R. 3 E., East Feliciana Parish; USGS Hatcherville topographic quadrangle; latitude 30 degrees 50 minutes 28 seconds N.; longitude 90 degrees 51 minutes 54 seconds W.

A—0 to 2 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; friable; many fine roots; very strongly acid; abrupt smooth boundary.

E—2 to 8 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; friable; many fine roots; very strongly acid; clear wavy boundary.

Bt1—8 to 15 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; many fine roots; common distinct clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—15 to 22 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt3—22 to 44 inches; red (2.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; many strong brown (7.5YR 5/6) uncoated sand grains; very strongly acid; clear wavy boundary.

Bt4—44 to 68 inches; red (2.5YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; common fine and medium gravel; very strongly acid.

The thickness of the solum ranges from 60 to 120 inches. Reaction is very strongly acid or strongly acid throughout the solum, except for surface horizons that have been limed. In at least one subhorizon within 30 inches below the soil surface, exchangeable aluminum makes up 50 percent or more of the effective cation-exchange capacity.

The A horizon has value of 4 and chroma of 1 to 3. It is 2 to 10 inches thick. Some pedons have a thin A horizon. Where present, it has value of 3 and chroma of 1 or 2.

The E horizon has value of 5 or 6 and chroma of 2 to 4. Texture is fine sandy loam or sandy loam. Typically, this horizon is 2 to 8 inches thick; however, some pedons do not have an E horizon.

Some pedons have a BA or EB horizon. Where present, these horizons have hue of 7.5YR, 10YR, or 5YR, value of 4 or 5, and chroma of 4, 6, or 8. Texture is fine sandy loam or sandy loam.

The upper part of the Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 or 8. Texture is clay loam, sandy clay loam, or loam. The lower part of the Bt horizon has value of 4 or 5 and chroma of 6 or 8. Texture is loam or sandy loam. Gravel content in the Bt horizon ranges from 0 to 10 percent. In some pedons, the Bt horizon has mottles in shades of brown.

Tangi Series

The Tangi series consists of moderately well drained soils that have a fragipan. Permeability is moderate in the upper part of the subsoil and slow and very slow in the fragipan. These soils formed in a moderately thick mantle of loess over loamy and clayey sediments. They are on uplands. Slopes range from 1 to 8 percent. Soils of the Tangi series are fine-silty, siliceous, thermic Typic Fragiudults.

Tangi soils commonly are near Bude, Fluker, Lytle, Ruston, Smithdale, and Toula soils. Bude and Fluker soils are nearly level, somewhat poorly drained, and have gray mottles in the upper part of the subsoil. Lytle and Ruston soils are in positions similar to those of the Tangi soils. Smithdale soils are on steeper side slopes than the Tangi soils. Lytle, Ruston, and Smithdale soils do not have a fragipan. Toula soils have longer and less convex slopes than the Tangi soils and contain less sand and less clay in the fragipan.

Typical pedon of Tangi silt loam, 1 to 3 percent slopes; on Idlewild Experiment Station, 2,300 feet southeast of headquarters, 60 feet north of main road; Spanish Land Grant sec. 46, T. 3 S., R. 2 E., East Feliciana Parish; USGS Bluff Creek topographic quadrangle; latitude 30 degrees 48 minutes 50 seconds N.; longitude 90 degrees 57 minutes 42 seconds W.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine and common medium and coarse roots; strongly acid; clear smooth boundary.

Bt1—5 to 12 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; many fine and few medium and coarse roots; few faint clay films on faces of peds; slightly acid; clear wavy boundary.

Bt2—12 to 20 inches; yellowish brown (10YR 5/8) silt loam; weak medium subangular blocky structure; friable; common fine roots; few fine pores; few faint clay films on faces of peds; many fine and medium manganese concretions; very strongly acid; clear wavy boundary.

2Btx1—20 to 24 inches; brownish yellow (10YR 6/6) silt loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots in seams between prisms; common fine pores; few faint clay films on faces of peds; many fine and medium manganese concretions; about 20 percent brittle bodies; very strongly acid; clear wavy boundary.

2Btx2—24 to 32 inches; strong brown (7.5YR 5/6) loam; moderate very coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle; common fine roots in seams between prisms; many fine pores; light brownish gray (10YR 6/2) vertical and horizontal seams of silt loam and uncoated sand grains surrounding some peds; common distinct clay films on faces of peds; very strongly acid; clear wavy boundary.

2Btx3—32 to 41 inches; strong brown (7.5YR 5/6) loam; common coarse prominent red (2.5YR 5/6) mottles; moderate very coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle; common fine roots in seams; common fine pores; few vertical light brownish gray (10YR 6/2) silt loam seams about 1 inch thick between peds; common distinct clay films on faces of peds; few chert pebbles; extremely acid; clear wavy boundary.

2Btx4—41 to 58 inches; mottled strong brown (7.5YR 5/6) and red (2.5YR 4/6) clay loam; moderate very coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle; few medium roots in seams between prisms; common fine pores; seams of light brownish gray (10YR 6/2) silty clay loam between peds; common distinct clay films on faces of peds; extremely acid; gradual wavy boundary.

2Btx5—58 to 63 inches; red (2.5YR 4/6) clay; weak coarse and very coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle; few fine roots in seams between prisms; many bodies of friable, yellowish brown (10YR 5/6) silty clay loam about 1/4 to 1/2 inch wide; few light brownish gray (10YR 6/2) seams of silt loam and uncoated sand grains on vertical faces of peds; common distinct clay films on faces of peds; extremely acid.

2B′t—63 to 80 inches; red (2.5YR 4/6) sandy clay; few medium prominent strong brown (7.5YR 5/6) streaks and mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common distinct clay films on faces of peds; extremely acid.

The solum is more than 60 inches thick. Depth to the fragipan ranges from 18 to 38 inches. Content of total sand in the family textural control section ranges from 10 to 25 percent. Less than 15 percent of the sand in the family textural control section is fine sand or coarser. In at least one subhorizon within a depth of 30 inches, exchangeable aluminum makes up 13 to 70 percent of the effective cation-exchange capacity.

The Ap horizon has value of 3 to 5 and chroma of 1 to 4. It is 3 to 7 inches thick. Where value is 3, the Ap horizon is less than 6 inches thick. Reaction ranges from very strongly acid to moderately acid, except where lime has been added.

Some pedons have a thin silt loam BE horizon. Where present, it has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3, 4, 6, or 8. Reaction ranges from very strongly acid to slightly acid.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4, 6, or 8. Mottles in shades of brown range from none to common. Reaction ranges from very strongly acid to slightly acid.

The 2Btx horizon has hue of 10YR or 7.5YR; value of 4 to 6, and chroma of 4, 6, or 8; or it has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 4, 6, or 8. Mottles in shades of brown, gray, or red range from few to many. Texture is silt loam, loam, silty clay loam, clay loam, sandy clay loam, sandy clay, or clay. Content of total sand ranges from 25 to 60 percent. Content of clay ranges from 20 to 55 percent. At least one subhorizon of the 2Btx horizon contains more than 35 percent clay. Reaction ranges from extremely acid to moderately acid.

The 2B′t horizon has the same colors, texture, and reaction as the 2Btx horizon. Some pedons do not have a 2B′t horizon.

Toula Series

The Toula series consists of moderately well drained soils that have a fragipan. Permeability is moderate in the upper part of the subsoil and slow in the fragipan. These soils formed in a moderately thick mantle of loess over loamy sediment. They are on uplands. Slopes range from 1 to 3 percent. Soils of the Toula series are fine-silty, siliceous, thermic Typic Fragiudults.

Toula soils commonly are near Bude, Calhoun, and Tangi soils. Bude and Calhoun soils are in lower positions than the Toula soils. Bude soils are somewhat poorly drained and have grayish mottles in some part of the upper 16 inches of the soil. Calhoun soils are poorly drained and are grayish throughout the profile. Tangi soils are in more sloping areas than the Toula soils and have a subsoil that is red and clayey in the lower part.

Typical pedon of Toula silt loam, 1 to 3 percent slopes; about 2.9 miles northeast of Pride, 2,600 feet west of Scalous Creek, 1,100 feet north of East Baton Rouge parish line; Spanish Land Grant sec. 61, T. 4 S., R. 3 E., East Feliciana Parish; USGS Pride topographic quadrangle; latitude 30 degrees 43 minutes 7 seconds N.; longitude 91 degrees 28 minutes 58 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common fine and few medium and coarse roots; very strongly acid; clear smooth boundary.

BE—4 to 7 inches; light yellowish brown (10YR 6/4) silt loam; weak medium subangular blocky structure; friable; few fine and few medium and coarse roots; very strongly acid; clear wavy boundary.

Bt—7 to 27 inches; yellowish brown (10YR 5/8) silty clay loam; moderate medium subangular blocky structure; friable; few medium and coarse roots; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Btx1—27 to 35 inches; yellowish brown (10YR 5/6) silt loam; moderate coarse and very coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle; light brownish gray (10YR 6/2) seams of silt loam surround prisms and make up about 20 percent of the volume; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

2Btx2—35 to 50 inches; yellowish brown (10YR 5/8) silt loam; moderate coarse and very coarse prismatic structure parting to moderate medium subangular blocky; light brownish gray (10YR 6/2) silt loam seams surround prisms and make up 20 to 30 percent of the volume; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

2B′t—50 to 65 inches; yellowish brown (10YR 5/8) clay loam; few medium prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; compact and brittle; few faint clay films on faces of peds; very strongly acid.

The solum is more than 60 inches thick. Depth to the fragipan ranges from 18 to 38 inches. Depth to mottles having chroma of 2 or less is typically greater than 20 inches, but ranges from 17 to 30 inches. Content of total sand in the textural family control section (Bt horizon) typically is less than 15 percent and ranges from 5 to 25 percent. Less than 15 percent of the sand in the textural family control section is fine sand or coarser. In at least one subhorizon within a depth of 30 inches, exchangeable aluminum makes up 50 percent or more of the effective cation-exchange capacity. Reaction ranges from very strongly acid to moderately acid throughout the solum, except in areas that have been limed.

The A horizon has value of 3 to 5 and chroma of 1 to 4. It is 3 to 7 inches thick. Where the value is 3, the A horizon is less than 6 inches thick.

The BE horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma 3, 4, 6, or 8.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4, 6, or 8. Texture is silt loam or silty clay loam. Mottles are in shades of brown and red and range from none to many. Some pedons have gray mottles below a depth of 16 inches from the soil surface.

The Btx and 2Btx horizons have the same range in colors as the Bt horizon and are mottled in shades of brown, gray, or red. Texture is silt loam or silty clay loam in the Btx horizon, and it is silt loam, loam, silty clay loam, and clay loam in the 2Btx horizon. Content of total sand in the 2Btx horizon ranges from 20 to 60 percent. Content of clay in the fragipan ranges from 18 to 35 percent.

The 2B′t horizon has the same range in colors and texture as the 2Btx horizon. Brittle bodies range from none to common and can make up from 10 to 40 percent of the volume of the matrix.

Tunica Series

The Tunica series consists of poorly drained, very slowly permeable soils that formed in clayey alluvium over loamy alluvium. These soils are on the flood plain of the Mississippi River. Some areas of these soils are protected from flooding by earthen levees; other areas flood frequently. Slopes range from 1 to 3 percent. Soils of the Tunica series are clayey over loamy, montmorillonitic, nonacid, thermic Vertic Haplaquepts.

Tunica soils commonly are near Commerce, Convent, Fausse, Robinsonville, and Sharkey soils. Commerce, Convent, and Robinsonville soils are in higher positions than the Tunica soils. Commerce soils are fine-silty, Convent soils are coarse-silty, and Robinsonville soils are coarse-loamy. Fausse and Sharkey soils are in lower positions than the Tunica soils and have a very fine-textured particle-size control section.

Typical pedon of Tunica clay, in an area of Tunica and Sharkey soils, undulating, frequently flooded; about 5.5 miles east of St. Francisville, 1,500 feet north of Lake Platt; sec. 23, T. 3 S., R. 4 W., West Feliciana Parish; USGS St. Francisville topographic quadrangle; latitude 30 degrees 43 minutes 7 seconds N.; longitude 91 degrees 28 minutes 58 seconds W.

Ap—0 to 11 inches; dark grayish brown (10YR 4/2) clay; weak fine subangular blocky structure; firm; strongly acid; clear wavy boundary.

Bg1—11 to 23 inches; gray (10YR 5/1) clay; common medium prominent yellowish brown (10YR 5/6) mottles;

weak medium subangular blocky structure; firm; moderately acid; clear wavy boundary.

Bg2—23 to 33 inches; grayish brown (10YR 5/2) silty clay; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; few slickensides; slightly acid; gradual wavy boundary.

2Cg—33 to 60 inches; light brownish gray (10YR 6/2) loam, common medium distinct yellowish brown (10YR 5/6) mottles; massive; friable; neutral.

The solum thickness and depth to loamy layers range from 20 to 36 inches.

The Ap horizon has value of 3 or 4 and chroma of 1 or 2. It is 5 to 12 inches thick. Reaction ranges from strongly acid to slightly alkaline.

The Bg horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 1 or 2; or it is neutral with value of 4 or 5. Texture is clay or silty clay. Reaction ranges from moderately acid to slightly alkaline.

The 2Cg horizon has hue of 10YR or 5Y, value of 4 to 6, and chroma of 1 or 2; or it is neutral with value of 4 to 6. Texture is fine sandy loam, loam, silty clay loam, or silt loam. Reaction ranges from moderately acid to moderately alkaline.

Weyanoke Series

The Weyanoke series consists of well drained, moderately permeable soils that formed in loamy sediments. These soils are on stream terraces and are subject to rare flooding. Slopes range from 1 to 3 percent. Soils of the Weyanoke series are coarse-silty, mixed, thermic Dystric Eutrochrepts.

Weyanoke soils commonly are near Bigbee, Feliciana, Loring, and Morganfield soils. Bigbee soils are on flood plains and are sandy throughout the profile. Feliciana and Loring soils are on uplands and are fine-silty. Loring soils have a fragipan. Morganfield soils are in lower positions than the Weyanoke soils and do not have a cambic horizon.

Typical pedon of Weyanoke silt, 1 to 3 percent slopes; about 1.7 miles west of St. Francisville, 600 feet east of Bayou Sara, 100 feet south of parish road; Spanish Land Grant sec. 70, T. 3 S., R. 3 W., West Feliciana Parish; USGS St. Francisville topographic quadrangle; latitude 30 degrees 46 minutes 39 seconds N., longitude 91 degrees 25 minutes 6 seconds W.

Ap—0 to 3 inches; brown (10YR 5/3) silt; weak fine granular structure; friable; many fine roots; neutral; clear smooth boundary.

Bw1—3 to 12 inches; yellowish brown (10YR 5/4) silt; weak medium subangular blocky structure; friable; many fine roots; few fine pores; few worm casts; neutral; clear wavy boundary.

Bw2—12 to 27 inches; dark yellowish brown (10YR 4/4) silt; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few worm casts; neutral; clear wavy boundary.

C—27 to 60 inches; yellowish brown (10YR 5/4) silt loam; common medium faint pale brown (10YR 6/3) mottles; massive; friable; common bedding planes; neutral.

The thickness of the solum ranges from 18 to 48 inches. Content of total sand in the particle-size control section ranges from 15 to 40 percent. Less than 15 percent of the sand in the family particle-size control section is fine sand or coarser. Reaction ranges from moderately acid to slightly alkaline throughout the solum.

The Ap horizon has value of 3 to 5 and chroma of 1 to 4. Where value is 3, the Ap horizon is less than 6 inches thick.

The Bw horizon has value of 4 or 5 and chroma of 3, 4, 6, or 8. Some pedons have mottles with chroma of 2 or less below 24 inches from the surface. Texture is silt, silt loam, or very fine sandy loam.

Some pedons have a BC horizon. Where present, it has colors similar to those of the Bw horizon. Mottles are in shades of gray or brown. Texture is silt loam, loam, or very fine sandy loam.

The C horizon has colors similar to those of the Bw horizon. Mottles are in shades of gray or brown. Bedding planes range from few to many. Texture is silt loam, loam, fine sandy loam, or very fine sandy loam.

Genesis of the Soils

W. H. Hudnall, Agronomy Department, Louisiana Agricultural Experiment Station, Louisiana State University Agricultural Center, prepared this section.

This section explains soil genesis and the processes and factors of soil formation as they relate to the soils of East and West Feliciana Parishes.

Soil genesis is the phase of soil science that deals with the processes and factors of soil formation *(6)*. It is the study of the formation of soils on the land surface and of changes in soil bodies. It is the science of the evolution of soils that are conceived of as natural units *(12, 24)*.

Internal and external forces influence soils. Generally, the internal forces are synonymous with soil-forming processes, and the external forces are synonymous with soil-forming factors. Soils generally are perceived to be a stable component of our environment; unless the soils are disturbed, they show very little change. Soil scientists, however, view soils as a dynamic system and can observe minute but important changes in the composition of the soil, depending upon when and how samples are taken *(18)*. The following information can give a better understanding of how the soil survey can be used and how interpretations can be derived from it.

Processes of Soil Formation

The complex soil-forming processes are the gains, losses, translocations, and transformations that occur in the soil. These also influence the kind and degree of development of soil horizons *(38)*. Soil-forming processes result in either additions to or losses from the soil of organic, mineral, and gaseous materials; translocations of materials from one point to another within the soil; and physical and chemical transformations of mineral and organic materials within the soil.

The addition of organic material to the soil is an important process that occurs to some extent in all soils. However, more organic matter accumulates in some soils than in others. Organic matter increases the available water and cation-exchange capacities of the soil, helps granulate the soil, and releases plant nutrients in the soil. Organic matter accumulates mainly in and above the surface horizon; consequently, the surface horizon is higher in organic matter content and is darker than the lower horizons. The accumulation of organic matter is significant only in the Arat and Fausse soils in East and West Feliciana Parishes. On most of the other soils in the parish, accumulated organic matter has only slightly darkened the surface layer.

Leaving crop residue and allowing leaf litter and other organic material to accumulate on the surface will maintain or increase the content of organic matter in the soil. Living organisms, through their activities, decompose these accumulations and mix them into the soil. Increasing the content of organic matter in the soil helps to control erosion.

The addition of mineral material on the surface has been important in the formation of some soils in East and West Feliciana Parishes. The added material, generally in the form of alluvium, provides new parent material in which the processes of soil formation can occur. In many cases, new material has accumulated faster than the processes of soil formation could appreciably alter the material. As a result, depositional strata formed in the lower horizons of many of the alluvial soils. Even though most of the soils in East and West Feliciana Parishes are alluvial, depositional strata are evident only in the Cascilla, Commerce, Convent, Fausse, Morganfield, Ochlockonee, Ouachita, and Robinsonville soils. These soils have been forming in recent or relatively young alluvial sediments. Liquids or gases added to the soil are generally compounds of nitrates and sulfates dissolved or trapped in rainwater.

The loss of components from the soil is also important in the overall process of soil development, although it is generally less noticeable than the addition of materials to the soils during soil formation. For example, as organic matter is decomposed, carbon dioxide is emitted into the atmosphere. Water also escapes from the soil by evaporation and transpiration from plants. On some soils, erosion has removed both mineral and organic materials. These losses are natural, to some extent, but in some places they are accelerated by human activities. In East and West Feliciana Parishes, moving water is the greatest cause of erosion.

Leaching removes many water-soluble compounds and elements from the soil. Water moving through the soil carries these soluble elements out of the soil. In many soils, the soluble elements have been moved completely out of the soil profile. Loamy soils, such as the Dexter, Kenefick, Ochlockonee, and Ouachita soils, are permeable, and most soluble bases are leached in a relatively short time. The more clayey soils are less permeable, and slowly moving water leaches smaller amounts of soluble elements. In areas where rainfall is sufficient, however, the soluble elements have been completely leached out of the profile of these less permeable soils. Relatively young soils that were initially high in bases show the least amount of leaching.

The translocation of material in the soil, either in eluviation or illuviation, has been an important process in the development of most of the soils in the parish. Eluviation is the moving of solids out of part of the soil profile, and illuviation is the moving of solids into a lower part of the soil profile. In soils that have large pores, soil material that is small enough to go through these pores can be suspended in water as it moves downward. Clay particles, because of their small size, move downward in this manner. The translocation and accumulation of clay in the profile is evident in some of the soils in East and West Feliciana Parishes.

In many soils in the parish, iron and manganese move to and accumulate in the lower part of the profile. These accumulations result from alternating oxidizing and reducing conditions related primarily to the fluctuations of water-saturated zones within the soils. Reduction occurs when water saturates the soil for relatively long periods and when low amounts of oxygen are in the soil. It results in gray compounds of iron and manganese characteristic of the Btg and BCg horizons in Calhoun and Guyton soils. Prevailing reduced conditions and a fluctuating water table can translocate iron and manganese to a lower horizon and can precipitate them at the top of the saturated zone. Bude and Fluker soils commonly have brownish or reddish mottles in grayish horizons.

The transformation of mineral and organic substances in soils is also a major process of soil formation. Transformation processes include oxidation and reduction, both in alternating cycles; hydration; solution; and hydrolysis. Oxidation is a geochemical reaction in well-aerated soils and parent material. It is important in the Dexter soils. It is the easily recognizable oxidation of the ferrous ion to the ferric ion and is most common in ferrous, iron-rich soils.

Hydration occurs when water molecules or hydroxyl groups are united with minerals without their being a part of the mineral itself. It generally occurs on the surfaces or edges of mineral grains or, partly, as the structure in simple salts. For example, after hydration, anhydrite mineralizes. Gypsum is commonly in clayey soils that contain sulfate, presumably from marine sediments, and calcium, either from marine sediments or mineral weathering. Few, if any, of the soils in East and West Feliciana Parishes contain gypsum.

Hydrolysis is the chemical reaction of the hydrogen ion with individual elements within crystal structures. The highly reactive hydrogen ion replaces one of the basic ions in the structure of the mineral. Hydrolysis generally is the most important chemical weathering process. It completely disintegrates primary minerals in all soils, thus making plant nutrients available to plants.

Solution is the simple process of water as the dissolving agent of salts, such as carbonates and sulfates. In solution, salts move through the soil and are either removed from the soil profile or deposited at a lower depth.

Fragipans formed in soils through chemical reactions, physical reactions, or both. Fragipans are dense, brittle layers in the subsoil of some soils, such as Bude, Tangi, and Toula soils. The material in fragipans has many vesicular pores and restricts water movement.

Factors of Soil Formation

External factors control the character and development of soils *(17)*. These factors are important in understanding soil genesis. They may be an agent, force, condition, relationship, or a combination of these that influence parent material *(12)*. The five factors of soil formation are climate, organisms, parent material, relief, and time *(22)*. They determine the characteristics of the soil, but not in terms of processes, causes, or forces active in the system. They can vary either singly or collectively.

Climate

Detailed information on the climate in East and West Feliciana Parishes is given in the section "General Nature of the Survey Area."

Rainfall and temperature are the most commonly measured features of climate and have been the most closely correlated to soil properties *(12)*. Although average climatic conditions are often given for a region, the extremes of climate in that region may have more influence in the development of certain soil properties. Rainfall and temperature can change, depending upon the relief or elevation within a general area.

Rainfall is relatively uniform throughout East and West Feliciana Parishes. Major differences within the soils in the parishes are not a result of variances in rainfall amounts. Kenefick and Lytle are some of the most highly leached soils, but they are different because they have different parent material. The solubility of elements in minerals increases as the temperature rises in summer. When temperatures are below freezing, the physical action of water, primarily in the form of ice, plays an important role in the physical destruction of the soil. This process has minimal influence in East and West Feliciana Parishes, however, which do not experience extremely cold conditions. To a degree, the intensity and annual distribution of rainfall are more important than the absolute amount of rainfall. Rainfall in the parishes is not equally distributed throughout the year, and some storms are severe. The intensity of rainfall has an effect on the type and rate of reactions.

Water erodes and deposits soil material, but its most important functions are within the soil profile. Some morphological characteristics result from excessive or inadequate amounts of water. In soils that are highly leached and acid, excessive amounts of water are indicated by grayish colors in the profile. The gray color is caused by reduction. Inadequate amounts of water are indicated by the tendency of very clayey soils to shrink as they dry and swell when they become wet.

Temperature is considered an independent soil-forming factor that influences reactions in the soil-forming process. It is the driving force in most models of evapotranspiration. The combination of evapotranspiration and uneven rainfall distribution is perhaps the most important climatic factor in the soil-forming process. For every 10-degree rise in temperature, the speed of a chemical reaction increases by a factor of 2 to 3 *(51)*. Solar radiation generally increases with increasing elevation. It increases at the most rapid rate in the lower, dust-filled layers of the air. The absorption of solar radiation at the surface is affected by many variables, such as soil color, plant cover, and aspect. South-facing slopes are always warmer than north-facing slopes. Temperature, unlike solar radiation, generally decreases with increasing elevation. The changes in elevation in East and West Feliciana Parishes are not sufficient to have a significant effect on the mean annual soil temperature.

Organisms

The effect of organisms as a soil-forming factor is indicated by the presence or absence of major horizons in the soil profile. Properties associated with living organisms are also important to soil formation. For example, living organisms play a significant role in the cycling of carbon.

The carbon cycle takes place mainly in the biosphere. In photosynthesis, the sun's energy, in the form of carbon, produces organic material. Nitrogen, a major plant nutrient, is used in photosynthesis to produce organic material. As organic matter decomposes, it releases nitrogen for plant use and returns carbon dioxide directly to the atmosphere. Humus, a somewhat resistant organic material, stays in the soil. Because of its size and chemical composition, humus increases infiltration, available water capacity, and cation-exchange capacity and the absorption and storage capabilities of such nutrients as calcium, magnesium, and potassium. It also improves soil tilth.

The natural vegetation in East and West Feliciana Parishes is quite diverse. The low flats and drainageways are primarily in hardwoods. The gently sloping areas are in mixed hardwoods and pine, and areas on the upper slopes and ridges are in pine and a few hardwoods. In soils with the same parent material, generally the reaction of soils in areas of hardwoods is slightly higher than that of soils in areas of pine. Soils that formed under hardwoods, pines, and mixed pines and hardwoods generally are thicker in the eluvial horizon than those that formed under prairie vegetation. In soils that developed under grass, the surface horizon is generally thicker and has more organic matter than in those that formed under pine or under mixed hardwoods and pine. The amount of organic matter accumulated in the soils depends on other factors, such as temperature and rainfall. Under optimal conditions for microbial activity, the production and decomposition of organic matter are in equilibrium. Accumulation of organic matter will not occur without a change in the factor controlling the equilibrium. The content of organic matter increases when its annual production is high and conditions are not favorable for its decomposition. In East and West Feliciana Parishes, most soils exist in an ecosystem in which the rate of decomposition of organic matter exceeds the ability of the vegetation to return organic matter to the soils; therefore, the soils are low in organic matter. The Arat soils, however, are in swamps and are continuously saturated; therefore, organic matter decomposes (oxidizes) slowly in these soils.

Parent Material

Parent material has been defined as "the state of the soil system at time zero of soil formation" *(22)*. It is that physical body and its associated chemical and mineralogical properties at the starting point that are changed by the other soil-forming factors over time. The influence of parent material on soil properties is greater on the younger soils than on the older soils. For example, the young Ochlockonee soils exhibit more properties associated with the initial deposits than the much older Bude soils, which may have very few properties in common with the initial parent material. In weathered soils, however, the influence of the parent material may be visible and the parent material can still be an independent factor in soil formation. The nature of the parent material can be expressed in the color, texture, and mineralogy of the soils. These properties can be related to physical and chemical properties, such as heat absorption, susceptibility to erosion, shrink-swell potential, and cation-exchange capacity. The characteristics associated with parent material in the parishes are described in the section "Landforms and Surface Geology."

Relief

The relief in East and West Feliciana Parishes ranges from low on flood plains to moderate in the uplands. Relief associated with the physiographic and geologic units within the parishes is described in more detail in the section "Landforms and Surface Geology."

Relief and the geologic physiographic units influence soil formation as a result of their effects on drainage, runoff, and erosion. Within specific geographic regions, several soil properties associated with relief are depth of the solum, thickness of the A horizon and its content of organic matter, wetness or dryness, color of the profile, degree of horizon differentiation, soil reaction, and content of soluble salts.

Relief also affects the moisture relationships in the soil, either in the form of ground water or in the amount of water available for photosynthesis. The water table is closer to the surface in depressions than on high points on the landscape. In soils with the same parent material, the seasonal high water table is more commonly close to the surface in soils in areas of low relief than in soils on convex landscapes. If the parent material is clayey and has low relief, the soils on ridgetops may be the wettest on the landscape.

Time

When considering soil formation, a pedologist normally does not think in terms of depth in inches or centimeters but rather in terms of horizons, sola, and profile development. Rather than absolute time, the rate of change is what affects soil properties. Time as a rate of change is what affects soil properties. Time as a rate of change can be described in terms of relative stages of development, absolute dating of horizons and profiles, the rate of soil formation, and the relation to the age and slope of the landform and associated weathering complex *(15, 18, 21)*.

Several hypotheses or models in regard to time have been developed. The hypothesis of the continuous steady state system determined that time is uninterrupted and soil development begins at time zero *(8, 23)*. The continuous steady state model shows that once a process or feature has begun, it continues to develop over time until one of the soil-forming factors greatly changes. Assuming no major change, the morphological feature in time would develop to the maximum extent without giving way to other features. At time zero, for example, the Ochlockonee soils have no subhorizons. As the processes of soil development begin, a cambic horizon would develop over time until it reached its maximum. According to this theory, no additional change takes place in the other soil-forming processes, and time is the only thing that changes. Because soils represent a dynamic system, however, the continuous steady state hypothesis probably errs in the way it relates time to pedogenic development.

Another hypothesis of soil formation is the sequential model *(5, 13, 14)*. In this model all stages of soil development operate concurrently. Some processes of soil development proceed so slowly that they have very little effect, whereas others are so rapid that they determine the dominant features of the soil. As long as the relative rates of the process continue unchanged, a given set of properties expresses soil development. The sequential model, sometimes referred to as polygenesis, has two major characteristics. First, a soil morphological entity may be a consequence of a combination of several genetic factors. Second, the morphological expression of soil processes may be a result of several pathways. For example, a given soil begins to form in loamy parent material on gently sloping uplands covered with pine forest under a climate similar to that of the present. A darkened surface horizon may form because of the accumulation of organic carbon. Subsequently, an E horizon and an argillic horizon may form. The result is a soil similar to the Lytle soils. As long as the parent material, climate, organisms, and relief did not change substantially over time, the soil would have formed sequentially. The factors, however, possibly could have changed. When some major factor changes, time as a factor of soil formation returns to zero. Because the changes made in a soil by any particular factor remain even after that factor changes, the total amount of time that the factors of soil formation were acting on the soil might not appear to differ from one soil to another.

Several methods can be used to determine the actual age of soils. Morphological properties, however, are most commonly used as a basis for dating the soils. For example, the Frost soils, which have a thick E horizon, would normally be considered older than the Bude soils, which have a relatively thin E horizon. Other factors, however, such as parent material, climate, and living organisms, also are important in determining horizon thickness. Although geology can indicate in gross terms the relative age of the soil, pedogenic time returns to zero each time major or catastrophic events affect the landscape. These events generally begin a major geologic period.

The rate of change in weathering decreases over time *(16)*. It becomes constant only when the soil material has been weathered to the maximum extent possible under the effects of a given combination of soil-forming factors. Soil formation is seldom a uniform process over time. Minor fluctuations can constantly readjust the environmental conditions in the system. The relative ages of the soils and their parent materials are described in the section "Landforms and Surface Geology."

Landforms and Surface Geology

Dr. Whitney J. Autin, Louisiana Geological Survey, prepared this section.

The total area of East and West Feliciana Parishes is about 564,600 acres or 882 square miles. These parishes are in southeastern Louisiana. St. Helena Parish forms their eastern boundary; East Baton Rouge Parish forms their southern boundary; the Mississippi River forms their western boundary; and Wilkinson and Amite Counties, Mississippi, form their northern boundary.

The southerly-flowing Amite River drains much of East Feliciana Parish and empties into coastal Lake Maurepas in southern Livingston Parish. The Comite River is the principal tributary to the Amite River in East Feliciana Parish. Many smaller streams originate in the parish and join these larger rivers. The elevation ranges from near 70 feet in the Amite River flood plain in the southeastern corner of the parishes to about 400 feet in the northwestern part.

A series of streams draining the area known as the Tunica Hills have origins in southwest Mississippi and flow through East and West Feliciana Parishes to the Mississippi River. Thompson Creek, Bayou Sara, and Tunica Bayou are the principal streams of the Tunica Hills. Each stream has numerous tributaries in East and West Feliciana Parishes. The elevation ranges from near 20 feet in the Mississippi River flood plain to about 400 feet near the boundary with the state of Mississippi.

East and West Feliciana Parishes can be divided into five general physiographic regions—loess hills, high terraces, intermediate terraces, Prairie terraces, and Holocene alluvial valleys *(42)*. Each physiographic region is characterized by soils formed in different kinds of parent material. Each map unit on the general soil map at the back of this publication reflects soils, landforms, and geological patterns in East and West Feliciana Parishes.

Loess Hills

This physiographic region makes up the majority of the land area of West Feliciana Parish. The loess consists of the relatively thin deposits of Sicily Island loess that were deposited from 95,000 to 75,000 years ago and the thicker deposits of Peoria loess that were deposited from 22,000 to 12,000 years ago. The Peoria loess is over 30 feet thick in the Tunica Hills near the Mississippi River. Where the blanket of Peoria loess and Sicily Island loess is thicker than 6 feet, the soils formed entirely in loess. Where loess deposits are less than 6 feet thick, soils reflect the nature of the underlying parent material of the terraces. The loess deposits that are thin to about 3 feet thick are near the Amite River in East Feliciana Parish. Regional aspects of loess deposits and the soils that form in thick loess areas were reviewed by Miller and others *(30)*.

Thick loess areas produce intensely dissected terrain with excessively steep slopes and ridge and ravine topography. The soils of the Loring-Feliciana general soil map unit formed in Peoria loess and occur near upland bluffs and escarpments. The soils of the Feliciana-Natchez general soil map unit formed in Peoria loess and occur in areas of ridge and ravine topography. The Feliciana soils are on narrow upland summits, and the Natchez soils are on steep erosional slopes. The soils of the Loring-Olivier general soil map unit formed in Peoria loess and occur near local drainage divides primarily west of Thompson Creek. The soils of the Loring-Olivier-Calhoun general soil map unit formed in areas of Peoria loess deposits that cover the Prairie terraces flanking Thompson Creek and the coast-parallel Prairie terraces. The soils of the Feliciana-Weyanoke general soil map unit formed in Peoria loess and loess-derived alluvium of the Prairie terraces and younger low terraces of Bayou Sara and Tunica Bayou. The Weyanoke soils formed in loess-derived alluvium deposited during the late Pleistocene and Holocene age from 18,000 to 3,000 years ago *(2, 19, 20)*.

High Terraces

This physiographic region occurs in a belt along the northern part of East and West Feliciana Parishes. It is part of a regional coast-parallel terrace that extends across southern Louisiana and as a fluvial terrace that extends along the flanks of the Mississippi River valley *(7, 42)*.

The high terraces in East and West Feliciana Parishes are on very gently sloping to moderately steep uplands. The elevation ranges from about 170 to 400 feet. The surface of the terraces has been maturely dissected by streams. Local relief is slightly more than 150 feet. Very gently sloping surfaces are on some of the larger interfluve areas.

The loess buries the Citronelle Formation of early Pleistocene or Pliocene age (probably deposited around 1 to 2 million years ago). The Citronelle Formation is comprised mostly of coarse-textured fluvial deposits consisting of interstratified gravelly sands with lesser amounts of silts and clays and occasional clayey lenses *(19)*. The source of the sediments, as indicated by mineralogical studies, is believed to have been the western slopes of the Appalachian Mountains ranging far to the east *(37)*.

On very gently sloping interfluve areas, thin loess deposits bury the soil profile developed in the Citronelle Formation. These areas are represented on the general soil map by the Tangi general soil map unit. On gently sloping to moderately sloping side slopes, most of the loess has been eroded to expose the Citronelle Formation. The soils of the Smithdale-Tangi general soil map unit formed in parent material of the Citronelle Formation and local deposits of eroded loess.

Intermediate Terraces

This physiographic region is in a belt along the southern part of East and West Feliciana Parishes and also trends north along the flanks of the Amite River valley in the western part of the parishes. It is part of a regional coast-parallel terrace that extends across southern Louisiana *(7, 42)*.

The intermediate terraces in East and West Feliciana Parishes are on nearly level to moderately sloping uplands. The elevation ranges from about 100 to 200 feet. The surface of the terraces has been slightly dissected by streams. Local relief ranges from 25 to 50 feet. Nearly level surfaces are on some of the larger interfluve areas.

Areas of the intermediate terraces correspond to the Toula-Bude general soil map unit. The Toula and Bude soils are on gently sloping landscapes and have loamy to clayey parent material beneath the loess. A distinct soil profile occurs at the top of this pre-loess sediment sequence, but it is not exposed as a surface soil anywhere in East and West Feliciana Parishes. These sediments are probably a combination of fluvial and/or colluvial deposits *(32)*.

Prairie Terraces

This landform occurs as stream flanking fluvial terraces along major stream valleys in East and West Feliciana Parishes *(7, 42)*. In East and West Feliciana Parishes, the Prairie terraces are mostly along the flanks of the Amite and Comite Rivers, Redwood and Thompson Creeks, and Bayou Sara and Tunica Bayou.

The Prairie terraces are on level to gently sloping uplands. The elevation ranges from 80 to 125 feet. Stream dissection of the surface is minimal; however, local escarpments with up to 40 feet of relief are adjacent to the principal river valleys.

Areas of the Prairie terraces correspond to the Feliciana soil of the Feliciana-Weyanoke general soil map unit and to the Fluker and Loring-Olivier-Calhoun general soil map units.

The sediments of the Prairie terraces are of late Pleistocene age. These sediments are blanketed by loess and by reworked and pedogenically-mixed loess that is 1 to 3 feet thick in eastern East Feliciana Parish and greater than 20 feet thick in western West Feliciana Parish. Beneath the loess is stream alluvium derived mostly from the high terraces. The stream alluvium is sandy at the base of the deposit and becomes finer toward the top. This is the parent material of the Fluker general soil map unit in the Amite River. The Fluker soil occurs as a buried soil beneath thick loess areas in West Feliciana Parish.

Holocene Alluvial Valleys

Alluvial deposits on flood plains and low terraces of the principal rivers and smaller streams are late Pleistocene and Holocene in age and are less than 18,000 years old *(2)*. Flood plains are subject to repeated annual flooding and local erosion and deposition of sediments. Low terraces are subject to rare flooding and local overflow and deposition of overwash sediments. Typically, they have level to undulating topography. Abandoned stream channels are easily identified in the large valleys, such as the flood plains of the Amite and Comite Rivers.

The Holocene alluvial valleys in the thin loess areas of the Amite and Comite Rivers correspond to the Ouachita-Ochlockonee-Guyton general soil map unit. These streams drain areas of weathered acid soils mostly of the high terraces. The Calhoun-Cascilla general soil map unit occurs on Holocene and late Pleistocene alluvial lands of the loessial parts of the Comite River and Thompson Creek. The Morganfield-Bigbee general soil map unit occurs on late Holocene alluvium in the thick loess areas of Bayou Sara and Tunica Bayou from parent materials deposited within the last 3,000 years.

A small area of West Feliciana Parish is in the Mississippi River alluvial valley. The parent materials in this area are derived from the deposition of sandy and loamy alluvium near the Mississippi River channel and clayey alluvium in the backswamps from the channel. Upland streams that enter the Mississippi River, such as Thompson Creek, Bayou Sara, and Tunica Bayou, develop small alluvial cones at their junctions with the Mississippi River valley.

The soils of the alluvial valleys have minimal profile development and mostly classify as Inceptisols or Entisols. Depositional strata commonly are recognized within 5 feet of the land surface. The soils of the Commerce-Sharkey-Convent, Commerce-Robinsonville-Convent, and Sharkey-Tunica-Fausse general soil map units formed in Mississippi River alluvium deposited within the past 2,800 years *(7)*. The soils of the Commerce-Sharkey-Convent general soil map unit are protected from flooding by artificial levees. Areas of the Commerce-Robinsonville-Convent general soil map unit are occasionally flooded, and areas of the Sharkey-Tunica-Fausse general soil map unit are frequently flooded. Loamy Commerce, Convent, and Robinsonville soils are near channels, and clayey Sharkey soils are in abandoned channels. Sharkey, Tunica, and Fausse soils are in the backswamps of the Mississippi River. Sharkey and Fausse soils are clayey throughout the profile, and Tunica soils have a loamy subsoil.

The soils of the Latanier-Moreland general soil map unit formed in Red River alluvium in West Feliciana Parish west of the Mississippi River. The alluvium parent material was deposited within the past 600 years *(37a)*. Latanier soils have a clayey surface layer and a loamy subsoil, and Moreland soils are clayey throughout the profile.

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Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

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

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.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

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.

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 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.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

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 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 are somewhat similar in all areas.

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. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.
Soft.—When dry, breaks into powder or individual grains under very slight pressure.
Cemented.—Hard; little affected by moistening.

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.

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.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:
Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.
Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.
Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.
Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum or periodically receive high rainfall, or both.
Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.
Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.
Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

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.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
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 (accelerated)—Erosion much more rapid than geologic erosion, mainly as a result of the human or animal activities or of a catastrophe in nature, such as fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.

Excess sodium (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Fast intake (in tables). The movement of water into the soil is rapid.

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.

Fine textured soil. Sandy clay, silty clay, or clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

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.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

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 (geology). Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. 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.

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 at the surface of a mineral soil.

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 O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

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 A or B horizon. 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 rock (unweathered bedrock) beneath the soil. The bedrock commonly underlies a C horizon but 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-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

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.

Infiltration. The downward entry of water into the immediate surface of soil or other material. This contrasts with percolation, which is movement of water through soil layers or material.

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

Leaching. The removal of soluble material from soil or other material by percolating water.

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. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

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. An area that has little or no natural soil and supports little or no vegetation.

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. Mottling generally indicates poor aeration and impeded drainage. 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.)

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

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.

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.

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.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water to move through the profile. Permeability is measured as the number of inches per hour that water moves through the saturated soil. Terms describing permeability are:

Very slow	less than 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

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Subsurface tunnels or pipelike cavities are formed by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

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.

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

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.

Reaction, soil. A measure of the acidity or alkalinity of a soil expressed in 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:

Extremely acid	below 4.5
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

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

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.

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.

Seepage (in tables). The movement of water through the soil adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell. 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.

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.

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 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

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.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

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 over periods 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 underlying material. The living roots and plant and animal activities are largely confined to the solum.

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 grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in organic matter content than the overlying surface layer.

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."

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.

Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

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). An 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.

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.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. These changes result in disintegration and decomposition of the material.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1931-91 at Clinton, Louisiana)

Month	Temperature						Precipitation			
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more
	°F	°F	°F	°F	°F	Units	In	In	In	
January-----	62.6	39.0	50.8	81	15	143	5.54	2.95	7.82	7
February----	65.8	41.0	53.4	82	18	152	5.53	3.19	7.62	7
March-------	71.8	46.3	59.0	86	25	271	6.06	3.31	8.48	6
April-------	79.3	54.9	67.1	95	33	457	5.15	1.83	7.90	5
May---------	85.2	61.2	73.2	95	43	690	5.12	2.62	7.29	5
June--------	90.7	67.5	79.1	99	53	819	4.78	2.54	6.74	7
July--------	91.8	69.9	80.9	99	61	924	5.92	3.71	7.91	9
August------	91.8	69.2	80.5	100	58	898	4.92	2.67	6.90	8
September---	87.6	65.0	76.3	97	46	743	4.40	1.69	6.67	6
October-----	80.5	53.5	67.0	91	31	511	3.13	0.72	5.03	3
November----	70.5	44.5	57.5	86	19	239	4.25	1.54	6.01	5
December----	64.9	40.5	52.7	82	18	150	5.86	3.56	8.16	6
Yearly:										
Average---	78.6	54.4	66.5	---	---	---	---	---	---	---
Extreme---	129	7	---	104	13	---	---	---	---	---
Total-----	---	---	---	---	---	5,997	60.65	42.45	71.57	74

* 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 (50 degrees F).

Table 2a.--Freeze Dates in Spring and Fall

(Recorded in the period 1931-75 at Clinton, Louisiana)

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--	Mar. 8	Mar. 20	Apr. 6
2 years in 10 later than--	Feb. 28	Mar. 12	Mar. 31
5 years in 10 later than--	Feb. 11	Feb. 27	Mar. 20
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 10	Nov. 1	Oct. 22
2 years in 10 earlier than--	Nov. 18	Nov. 7	Oct. 28
5 years in 10 earlier than--	Dec. 2	Nov. 19	Nov. 7

Table 2b.--Freeze Dates in Spring and Fall

(Recorded in the period 1976-91 at Clinton, Louisiana)

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--	Feb. 28	Mar. 24	Mar. 27
2 years in 10 later than--	Feb. 22	Mar. 14	Mar. 22
5 years in 10 later than--	Feb. 10	Feb. 25	Mar. 12
First freezing temperature in fall:			
1 year in 10 earlier than--	Dec. 3	Nov. 17	Nov. 1
2 years in 10 earlier than--	Dec. 7	Nov. 22	Nov. 7
5 years in 10 earlier than--	Dec. 14	Dec. 3	Nov. 17

Table 3a.--Growing Season

(Recorded in the period 1931-75 at Clinton, Louisiana)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	256	230	207
8 years in 10	267	241	215
5 years in 10	289	260	229
2 years in 10	311	280	243
1 year in 10	322	290	251

Table 3b.--Growing Season

(Recorded in the period 1976-91 at Clinton, Louisiana)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	271	246	225
8 years in 10	279	255	233
5 years in 10	295	272	248
2 years in 10	310	289	264
1 year in 10	318	297	272

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AR	Arat muck	300	0.1
Bd	Bude silt loam, 0 to 2 percent slopes	600	0.1
Ca	Calhoun silt loam	3,300	0.6
Cb	Calhoun silt loam, occasionally flooded	400	0.1
CC	Calhoun and Cascilla silt loams, frequently flooded	8,900	1.6
Ce	Commerce silt loam	1,600	0.3
CM	Commerce soils, gently undulating, occasionally flooded	9,100	1.6
CN	Commerce soils, gently undulating, frequently flooded	2,600	0.5
Co	Convent silt loam	3,700	0.7
CR	Crevasse loamy sand, frequently flooded	1,000	0.2
De	Deerford silt loam, 0 to 2 percent slopes	1,900	0.3
Dx	Dexter silt loam, 1 to 3 percent slopes	900	0.2
FA	Fausse clay	8,400	1.5
Fb	Feliciana silt loam, 0 to 1 percent slopes	500	0.1
Fe	Feliciana silt loam, 1 to 3 percent slopes	13,300	2.4
Fg	Feliciana silt loam, 3 to 8 percent slopes	29,400	5.2
FH	Feliciana and Natchez silt loams, steep	64,100	11.4
Fk	Fluker silt loam, 0 to 2 percent slopes	13,100	2.3
Fr	Frost silt loam, ponded	200	*
Ke	Kenefick fine sandy loam, 1 to 3 percent slopes	800	0.1
LA	Latanier and Moreland soils, undulating, occasionally flooded	700	0.1
Lo	Loring silt loam, 1 to 3 percent slopes	34,700	6.1
Lr	Loring silt loam, 3 to 8 percent slopes	35,600	6.3
Lt	Lytle silt loam, 1 to 3 percent slopes	5,800	1.0
Ly	Lytle silt loam, 3 to 8 percent slopes	26,300	4.7
MB	Morganfield and Bigbee soils, frequently flooded	18,400	3.3
Oa	Olivier silt loam, 0 to 1 percent slopes	2,900	0.5
Ob	Olivier silt loam, 1 to 3 percent slopes	6,900	1.2
OG	Ouachita, Ochlockonee, and Guyton soils, frequently flooded	59,300	10.5
PA	Pits-Arents complex, 0 to 5 percent slopes	2,100	0.4
RA	Riverwash	3,400	0.6
RC	Robinsonville and Convent soils, occasionally flooded	11,000	1.9
Rs	Ruston sandy loam, 1 to 5 percent slopes	100	*
Sa	Sharkey clay	2,300	0.4
SH	Sharkey clay, frequently flooded	8,700	1.5
SM	Smithdale sandy loam, 8 to 30 percent slopes	27,300	4.8
Ta	Tangi silt loam, 1 to 3 percent slopes	44,500	7.9
Tg	Tangi silt loam, 3 to 8 percent slopes	60,300	10.6
To	Toula silt loam, 1 to 3 percent slopes	800	0.1
Ts	Tunica-Sharkey complex, undulating	1,500	0.3
TU	Tunica and Sharkey soils, undulating, frequently flooded	27,000	4.8
UB	Urban land	1,000	0.2
We	Weyanoke silt, 1 to 3 percent slopes	6,300	1.1
	Water	13,600	2.4
	Total	564,600	100.0

* Less than 0.1 percent.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(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)

Soil name and map symbol	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass
		AUM*	AUM*	AUM*
AR: Arat	VIIIw	---	---	---
Bd: Bude	IIw	7.5	6.0	11.0
Ca: Calhoun	IIIw	7.5	5.0	---
Cb: Calhoun	IVw	6.5	5.5	---
CC: Calhoun and Cascilla	Vw	6.5	5.6	---
Ce: Commerce	IIw	9.0	8.0	15.5
CM: Commerce	IIIw	8.0	7.0	---
CN: Commerce	Vw	---	5.5	---
Co: Convent	IIw	9.0	8.0	15.5
CR: Crevasse	Vw	---	4.0	---
De: Deerford	IIIw	---	6.0	10.0
Dx: Dexter	IIe	9.0	6.0	15.0
FA: Fausse	VIIw	---	---	---
Fb: Feliciana	I	8.5	7.5	12.0
Fe: Feliciana	IIe	---	7.0	11.5
Fg: Feliciana	IIIe	8.0	6.0	10.0
FH: Feliciana and Natchez	VIe	7.0	4.5	6.0
Fk: Fluker	IIw	7.5	6.0	11.0
Fr: Frost, ponded	VIIw	---	---	---

See footnotes at end of table.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass
		AUM*	AUM*	AUM*
Ke------------------------ Kenefick	IIe	8.0	8.0	10.0
LA------------------------ Latanier and Moreland	IVw	---	5.8	10.0
Lo------------------------ Loring	IIe	8.0	6.0	11.5
Lr------------------------ Loring	IIIe	7.5	5.5	11.0
Lt------------------------ Lytle	IIe	8.5	6.0	11.5
Ly------------------------ Lytle	IIIe	8.0	5.5	11.5
MB:				
Morganfield--------------	IVw	8.9	6.0	---
Bigbee-------------------	IIIs	7.5	4.0	---
Oa------------------------ Olivier	IIw	7.0	5.0	11.0
Ob------------------------ Olivier	IIe	7.0	5.0	11.0
OG------------------------ Ouachita, Ochlockonee, and Guyton	Vw	6.0	4.5	---
PA------------------------ Pits-Arents	VIs	---	---	---
RA**---------------------- Riverwash	Vw	---	---	---
RC------------------------ Robinsonville and Convent	IIIw	8.0	7.0	13.3
Rs------------------------ Ruston	IIe	9.5	5.5	12.0
Sa------------------------ Sharkey	IIIw	---	6.5	10.0
SH------------------------ Sharkey	Vw	---	4.2	---
SM------------------------ Smithdale	VIe	7.0	4.5	---
Ta------------------------ Tangi	IIe	8.5	6.0	12.5

See footnotes at end of table.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass
		AUM*	AUM*	AUM*
Tg----- Tangi	IIIe	8.0	5.5	12.0
To----- Toula	IIe	9.0	6.5	14.0
Ts----- Tunica-Sharkey	IIIw	---	5.0	---
TU----- Tunica and Sharkey	Vw	---	4.0	---
UB**----- Urban land	---	---	---	---
We----- Weyanoke	IIe	8.5	7.5	12.0

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

Table 6.--Woodland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
AR----------- Arat	5W	Slight	Severe	Severe	--------	Water tupelo--------	50	5	Baldcypress.
						Baldcypress---------	50	3	
Bd----------- Bude	10W	Slight	Moderate	Slight	Severe	Loblolly pine-------	98	10	Loblolly pine, slash pine.
						Slash pine----------	---	---	
						Sweetgum------------	---	---	
Ca----------- Calhoun	9W	Slight	Moderate	Moderate	Severe	Loblolly pine-------	90	9	Loblolly pine, slash pine, water oak, green ash.
						Cherrybark oak------	---	---	
						Water oak-----------	---	---	
						Sweetgum------------	---	---	
						Slash pine----------	90	11	
Cb----------- Calhoun	9W	Slight	Severe	Moderate	Severe	Loblolly pine-------	90	9	Slash pine, Nuttall oak, water oak, green ash, loblolly pine.
						Water oak-----------	90	6	
						Sweetgum------------	---	---	
						Water oak-----------	---	---	
						Slash pine----------	---	---	
CC**:									
Calhoun--------	8W	Slight	Severe	Moderate	Moderate	Loblolly pine-------	84	8	Nuttall oak, green ash.
						Sweetgum------------	---	---	
Cascilla-------	14W	Slight	Moderate	Moderate	Moderate	Cherrybark oak------	112	14	Cherrybark oak, loblolly pine, Nuttall oak.
						Eastern cottonwood--	110	11	
						Loblolly pine-------	93	10	
						Nuttall oak---------	114	---	
						Water oak-----------	104	7	
						Sweetgum------------	102	10	
						Yellow-poplar-------	115	9	
Ce, CM**-------- Commerce	13W	Slight	Moderate	Slight	Severe	Eastern cottonwood--	120	13	Water oak, pecan, Shumard oak, cherrybark oak.
						Green ash-----------	100	7	
						Nuttall oak---------	90	---	
						Water oak-----------	110	8	
						Pecan---------------	---	---	
						American sycamore---	---	---	
						Willow oak----------	---	---	
CN----------- Commerce	12W	Slight	Severe	Severe	Moderate	Eastern cottonwood--	113	12	Nuttall oak, overcup oak, green ash.
						Nuttall oak---------	---	---	
						Overcup oak---------	---	---	
						Water hickory-------	---	---	
						Sugarberry----------	---	---	
Co----------- Convent	13W	Slight	Moderate	Slight	Severe	Eastern cottonwood--	120	13	Water oak, cherrybark oak, Shumard oak, pecan.
						Sweetgum------------	110	12	
						American sycamore---	---	---	
						Nuttall oak---------	90	---	
						Water oak-----------	---	---	
						Pecan---------------	---	---	
						Green ash-----------	80	3	

See footnotes at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
CR: Crevasse	7W	Slight	Moderate	Severe	Slight	Sweetgum	90	7	American sycamore, eastern cottonwood.
						White oak	100	5	
De: Deerford	10W	Slight	Moderate	Moderate	Severe	Loblolly pine	92	10	Loblolly pine, slash pine, water oak, Shumard oak, cherrybark oak.
						Sweetgum	86	7	
						Slash pine	92	12	
						Water oak	82	5	
Dx: Dexter	12A	Slight	Slight	Slight	Moderate	Loblolly pine	110	12	Loblolly pine, slash pine, water oak, cherrybark oak, Shumard oak.
						Slash pine	110	14	
						Cherrybark oak	---	---	
						Water oak	---	---	
						Sweetgum	---	---	
FA: Fausse	6W	Slight	Severe	Severe	Moderate	Baldcypress	96	6	Baldcypress.
						Water hickory	---	---	
						Water tupelo	---	---	
						Overcup oak	---	---	
						Black willow	---	---	
						Red maple	---	---	
Fb, Fe, Fg: Feliciana	12A	Slight	Slight	Slight	Slight	Loblolly pine	105	12	Cherrybark oak, loblolly pine.
						Cherrybark oak	100	10	
						Sweetgum	90	7	
FH**:									
Feliciana	12R	Moderate	Moderate	Slight	Slight	Loblolly pine	105	12	Cherrybark oak, loblolly pine.
						Cherrybark oak	90	8	
						Sweetgum	90	7	
Natchez	11R	Moderate	Moderate	Slight	Slight	Eastern cottonwood	110	11	Green ash, loblolly pine, yellow-poplar.
						Cherrybark oak	105	12	
						Loblolly pine	100	11	
						Sweetgum	105	11	
Fk: Fluker	11W	Slight	Moderate	Slight	Severe	Slash pine	90	11	Loblolly pine, slash pine.
						Loblolly pine	90	9	
						Longleaf pine	---	---	
						Sweetgum	90	7	
						Southern red oak	---	---	
						Green ash	---	---	
						Water oak	90	6	
Fr: Frost, ponded	3W	Slight	Severe	Severe	Severe	Baldcypress	70	3	Baldcypress.
						Water tupelo	70	5	
Ke: Kenefick	10A	Slight	Slight	Slight	Moderate	Loblolly pine	100	10	Loblolly pine, slash pine.
						Shortleaf pine	90	10	
						Sweetgum	---	---	
						Southern red oak	---	---	

See footnotes at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
LA**:									
Latanier-------	4W	Slight	Moderate	Moderate	Severe	Green ash-----------	80	4	Green ash,
						Water oak-----------	90	6	water oak,
						Sweetgum------------	90	7	sweetgum,
						Nuttall oak---------	---	---	Shumard oak.
						Honeylocust---------	---	---	
Moreland-------	3W	Slight	Severe	Moderate	Severe	Green ash-----------	75	3	Green ash,
						Sweetgum------------	90	7	water oak,
						Honeylocust---------	---	---	Shumard oak.
						American sycamore---	---	---	
						Water oak-----------	90	6	
						Nuttall oak---------	---	---	
						Swamp chestnut oak--	---	---	
						Sugarberry----------	---	---	
Lo-------------- Loring	10A	Slight	Moderate	Slight	Severe	Loblolly pine-------	95	10	Loblolly pine,
						Southern red oak----	75	4	shortleaf
						Cherrybark oak------	86	7	pine,
						Sweetgum------------	90	7	cherrybark
						Water oak-----------	90	6	oak.
Lr-------------- Loring	10A	Slight	Moderate	Slight	Severe	Loblolly pine-------	95	10	Loblolly pine,
						Southern red oak----	75	4	shortleaf
						Cherrybark oak------	86	7	pine,
						Sweetgum------------	90	7	cherrybark
						Water oak-----------	90	6	oak.
Lt, Ly---------- Lytle	10A	Slight	Slight	Slight	Moderate	Loblolly pine-------	100	11	Loblolly pine,
						Slash pine----------	90	11	slash pine,
						Longleaf pine-------	---	---	longleaf pine.
						Sweetgum------------	---	---	
						Southern red oak----	---	---	
						Green ash-----------	---	---	
						Hickory-------------	---	---	
MB**:									
Morganfield----	13W	Slight	Moderate	Moderate	Moderate	Eastern cottonwood--	120	13	Green ash,
						Green ash-----------	90	4	American
						Nuttall oak---------	100	---	sycamore.
						Sweetgum------------	110	12	
						Water oak-----------	105	7	
						Yellow-poplar-------	115	9	
Bigbee---------	9S	Slight	Slight	Moderate	Slight	Loblolly pine-------	88	9	Loblolly pine.
Oa, Ob---------- Olivier	11W	Slight	Moderate	Slight	Severe	Loblolly pine-------	100	11	Loblolly pine,
						Slash pine----------	100	13	slash pine,
						Sweetgum------------	85	6	water oak,
						Water oak-----------	90	6	cherrybark
						Cherrybark oak------	90	8	oak, Shumard oak.
OG**:									
Ouachita-------	11W	Slight	Slight	Moderate	Severe	Loblolly pine-------	100	11	Loblolly pine,
						Sweetgum------------	100	10	cherrybark
						Eastern cottonwood--	100	9	oak, Nuttall
						Cherrybark oak------	100	10	oak, shortleaf pine.

See footnotes at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
OG**:									
Ochlockonee----	11W	Slight	Moderate	Moderate	Moderate	Loblolly pine-------	100	11	Loblolly pine, cherrybark oak, Nuttall oak.
						Sweetgum------------	---	---	
Guyton---------	6W	Slight	Severe	Severe	Severe	Green ash-----------	100	6	Nuttall oak, green ash.
						Sweetgum------------	---	---	
						Black willow--------	---	---	
						Nuttall oak---------	---	---	
						Eastern cottonwood--	---	---	
						Sugarberry----------	---	---	
						Loblolly pine-------	95	10	
RC**:									
Robinsonville--	11A	Slight	Slight	Slight	Slight	Eastern cottonwood--	110	11	Green ash, water oak.
						Green ash-----------	85	4	
						Sweetgum------------	105	11	
						American sycamore---	115	---	
Convent--------	13W	Slight	Moderate	Slight	Severe	Eastern cottonwood--	120	13	Water oak, cherrybark oak, pecan.
						Sweetgum------------	110	12	
						American sycamore---	---	---	
						Nuttall oak---------	90	---	
						Water oak-----------	---	---	
						Pecan---------------	---	---	
						Green ash-----------	80	3	
Rs-------------- Ruston	9A	Slight	Slight	Slight	Slight	Loblolly pine-------	91	9	Loblolly pine, slash pine, longleaf pine.
						Slash pine----------	91	12	
						Longleaf pine-------	76	6	
						Southern red oak----	---	---	
						Post oak------------	---	---	
						Sweetgum------------	---	---	
						Hickory-------------	---	---	
Sa-------------- Sharkey	6W	Slight	Severe	Moderate	Severe	Water oak-----------	90	6	Water oak, Nuttall oak, green ash.
						Willow oak----------	100	7	
						Nuttall oak---------	90	---	
						Sugarberry----------	---	---	
						Cedar elm-----------	---	---	
						Green ash-----------	---	---	
						Honeylocust---------	---	---	
						Sweetgum------------	90	7	
						Swamp chestnut oak--	---	---	
SH-------------- Sharkey	4W	Slight	Severe	Severe	Moderate	Green ash-----------	90	4	Baldcypress.
						Overcup oak---------	96	---	
						Baldcypress---------	---	---	
						Black willow--------	---	---	
						Water tupelo--------	---	---	
						Water hickory-------	---	---	
						Sugarberry----------	---	---	
SM-------------- Smithdale	10R	Moderate	Moderate	Slight	Slight	Loblolly pine-------	95	10	Loblolly pine, longleaf pine, slash pine.
						Longleaf pine-------	69	5	
						Slash pine----------	85	11	

See footnotes at end of table.

Table 6.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
Ta, Tg: Tangi	13A	Slight	Slight	Slight	Moderate	Slash pine	100	13	Loblolly pine, slash pine.
						Loblolly pine	109	12	
						Longleaf pine	---	---	
						Sweetgum	---	---	
						Southern red oak	---	---	
						Green ash	---	---	
To: Toula	13A	Slight	Slight	Slight	Moderate	Slash pine	100	13	Slash pine, loblolly pine.
						Loblolly pine	101	11	
						Longleaf pine	74	6	
						Sweetgum	---	---	
						Southern red oak	---	---	
						Green ash	---	---	
Ts**:									
Tunica	8W	Slight	Moderate	Moderate	Moderate	Cherrybark oak	90	8	Water oak, green ash, Nuttall oak.
						Eastern cottonwood	105	10	
						Green ash	100	4	
						Nuttall oak	105	---	
						Sweetgum	90	7	
Sharkey	6W	Slight	Severe	Moderate	Severe	Green ash	98	6	Green ash, Nuttall oak.
						Nuttall oak	---	---	
						Sugarberry	---	---	
						Water hickory	---	---	
						Sweetgum	---	---	
						Overcup oak	---	---	
						Honeylocust	---	---	
TU**:									
Tunica	6W	Slight	Severe	Severe	Moderate	Green ash	98	6	Green ash. baldcypress.
						Eastern cottonwood	---	---	
						Nuttall oak	---	---	
						Water hickory	---	---	
						Overcup oak	---	---	
Sharkey	4W	Slight	Severe	Severe	Moderate	Green ash	90	4	Baldcypress.
						Overcup oak	96	---	
						Baldcypress	---	---	
						Black willow	---	---	
						Water tupelo	---	---	
						Water hickory	---	---	
						Sugarberry	---	---	
We: Weyanoke	10A	Slight	Slight	Slight	Moderate	Loblolly pine	93	10	Loblolly pine, cherrybark oak.
						Cherrybark oak	110	13	
						Sweetgum	100	10	

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

Table 7.--Recreational Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AR: Arat	Severe: flooding, ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, flooding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, flooding, excess humus.
Bd: Bude	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ca, Cb: Calhoun	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
CC*:					
Calhoun	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Cascilla	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Ce: Commerce	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
CM*: Commerce	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
CN: Commerce	Severe: flooding.	Moderate: flooding, wetness, percs slowly.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
Co: Convent	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
CR: Crevasse	Severe: flooding.	Moderate: flooding, too sandy.	Severe: flooding.	Moderate: too sandy, flooding.	Severe: droughty, flooding.
De: Deerford	Severe: flooding, wetness, excess sodium.	Severe: wetness, excess sodium.	Severe: wetness, excess sodium.	Severe: wetness.	Severe: excess sodium, wetness.
Dx: Dexter	Slight	Slight	Moderate: slope.	Slight	Slight.
FA: Fausse	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding, flooding.	Severe: ponding, too clayey.	Severe: ponding, flooding, too clayey.
Fb: Feliciana	Slight	Slight	Slight	Slight	Slight.

See footnote at end of table.

Table 7.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Fe, Fg: Feliciana	Slight	Slight	Moderate: slope.	Slight	Slight.
FH*:					
Feliciana	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Natchez	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
Fk: Fluker	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Fr: Frost, ponded	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
Ke: Kenefick	Slight	Slight	Moderate: slope.	Slight	Slight.
LA*:					
Latanier	Severe: flooding, wetness, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: too clayey.	Severe: too clayey.
Moreland	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, too clayey.	Severe: wetness, too clayey.
Lo, Lr: Loring	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight	Slight.
Lt, Ly: Lytle	Slight	Slight	Moderate: slope.	Slight	Slight.
MB*:					
Morganfield	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Bigbee	Severe: flooding.	Moderate: too sandy.	Moderate: too sandy, flooding.	Moderate: too sandy.	Moderate: droughty, flooding.
Oa, Ob: Olivier	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
OG*:					
Ouachita	Severe: flooding.	Moderate: flooding, percs slowly.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Ochlockonee	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.

See footnote at end of table.

Table 7.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
OG*:					
Guyton	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
PA*:					
Pits	Variable	Variable	Variable	Variable	Variable.
Arents	Slight	Slight	Moderate: slope.	Slight	Slight.
RA* Riverwash	Severe: flooding, small stones, wetness.	Severe: wetness, too sandy.	Severe: small stones, wetness, flooding.	Severe: wetness, too sandy.	Severe: wetness, droughty, flooding.
RC*:					
Robinsonville	Severe: flooding.	Slight	Moderate: slope, flooding.	Slight	Moderate: flooding.
Convent	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
Rs Ruston	Slight	Slight	Moderate: slope.	Slight	Slight.
Sa Sharkey	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, percs slowly.	Severe: wetness, too clayey.	Severe: wetness, too clayey.
SH Sharkey	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.	Severe: wetness, flooding, too clayey.
SM Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Ta, Tg Tangi	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
To Toula	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Ts*:					
Tunica	Severe: percs slowly, too clayey, flooding.	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey.	Severe: too clayey.
Sharkey	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, too clayey.	Severe: wetness, too clayey.

See footnote at end of table.

Table 7.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
TU*:					
Tunica	Severe: flooding, percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey, flooding, percs slowly.	Severe: too clayey.	Severe: flooding, too clayey.
Sharkey	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.	Severe: wetness, flooding, too clayey.
UB*. Urban land	Variable	Variable	Variable	Variable	Variable.
We. Weyanoke	Severe: flooding.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 8.--Wildlife Habitat

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AR----------------- Arat	Very poor.	Very poor.	Very poor.	Very poor.	---	Very poor.	Good	Fair	Very poor.	Very poor.	Good.
Bd----------------- Bude	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Ca----------------- Calhoun	Poor	Fair	Fair	Good	Fair	Good	Good	Good	Fair	Fair	Good.
Cb----------------- Calhoun	Poor	Fair	Good	Good	Good	Good	Good	Good	Fair	Good	Good.
CC*:											
Calhoun-----------	Very poor.	Fair	Fair	Good	Poor	Good	Good	Good	Poor	Fair	Good.
Cascilla----------	Poor	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Ce----------------- Commerce	Good	Good	Good	Good	---	Good	Fair	Fair	Good	Good	Fair.
CM*---------------- Commerce	Good	Good	Good	Good	---	Good	Fair	Fair	Good	Good	Fair.
CN----------------- Commerce	Poor	Fair	Fair	Good	---	Fair	Fair	Fair	Fair	Good	Fair.
Co----------------- Convent	Good	Good	Good	Good	---	Good	Fair	Fair	Good	Good	Fair.
CR----------------- Crevasse	Poor	Fair	Fair	Poor	Poor	Poor	Poor	Very poor.	Fair	Poor	Very poor.
De----------------- Deerford	Fair	Good	Good	Fair	Good	Fair	Fair	Fair	Good	Good	Fair.
Dx----------------- Dexter	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
FA----------------- Fausse	Very poor.	Very poor.	Very poor.	Poor	---	Poor	Good	Good	Very poor.	Poor	Good.
Fb, Fe------------- Feliciana	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Fg----------------- Feliciana	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
FH*:											
Feliciana---------	Poor	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Natchez-----------	Poor	Fair	Good	Good	Fair	Good	Very poor.	Very poor.	Fair	Good	Very poor.

See footnote at end of table.

Table 8.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Fk----------------- Fluker	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Fr----------------- Frost, ponded	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Good	Fair	Very poor.	Very poor.	Good.
Ke----------------- Kenefick	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LA*:											
Latanier----------	Fair	Fair	Fair	Good	Poor	Fair	Good	Good	Fair	Good	Good.
Moreland----------	Fair	Fair	Fair	Good	Poor	Fair	Good	Good	Fair	Good	Good.
Lo----------------- Loring	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Lr----------------- Loring	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Lt----------------- Lytle	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Ly----------------- Lytle	Fair	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MB*:											
Morganfield-------	Poor	Fair	Fair	Good	Fair	Good	Poor	Very poor.	Fair	Good	Very poor.
Bigbee------------	Poor	Fair	Fair	Poor	Fair	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
Oa, Ob------------- Olivier	Fair	Good	Good	Fair	Good	Good	Fair	Fair	Good	Good	Fair.
OG*:											
Ouachita----------	Poor	Fair	Fair	Good	Poor	Good	Good	Fair	Fair	Good	Fair.
Ochlockonee-------	Poor	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Guyton------------	Poor	Fair	Fair	Fair	Fair	Poor	Good	Good	Poor	Fair	Good.
PA*:											
Pits--------------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Arents------------	Fair	Fair	Fair	Fair	Fair	Fair	Very poor.	Poor	Fair	Fair	Poor.
RA*---------------- Riverwash	---	---	---	---	---	---	Very poor.	Very poor.	---	---	Very poor.
RC*:											
Robinsonville-----	Good	Good	Good	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.
Convent-----------	Fair	Good	Good	Good	---	Good	Fair	Fair	Good	Good	Fair.

See footnote at end of table.

Table 8.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
Rs: Ruston	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Sa: Sharkey	Fair	Fair	Fair	Good	---	Good	Good	Good	Fair	Good	Good.
SH: Sharkey	Poor	Poor	Fair	Good	---	Poor	Fair	Fair	Poor	Fair	Fair.
SM: Smithdale	Poor	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Ta: Tangi	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Tg: Tangi	Fair	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
To: Toula	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Ts*:											
Tunica	Fair	Fair	Fair	Fair	---	Good	Poor	Poor	Fair	Fair	Poor.
Sharkey	Fair	Fair	Fair	Good	---	Good	Good	Good	Fair	Good	Good.
TU*:											
Tunica	Poor	Fair	Fair	Fair	---	Fair	Good	Good	Fair	Fair	Good.
Sharkey	Poor	Poor	Fair	Good	---	Poor	Fair	Fair	Poor	Fair	Fair.
UB*: Urban land	---	---	---	---	---	---	---	---	---	---	---
We: Weyanoke	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 9.--Building Site Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AR: Arat	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding, low strength.	Severe: ponding, flooding, excess humus.
Bd: Bude	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
Ca: Calhoun	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness.	Severe: wetness.
Cb: Calhoun	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
CC*:					
Calhoun	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
Cascilla	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Ce: Commerce	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Moderate: wetness.
CM*: Commerce	Severe: wetness.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.	Moderate: wetness, flooding.
CN: Commerce	Severe: wetness.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
Co: Convent	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
CR: Crevasse	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: droughty, flooding.
De: Deerford	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness.	Severe: excess sodium, wetness.
Dx: Dexter	Severe: cutbanks cave.	Slight	Slight	Severe: low strength.	Slight.

See footnote at end of table.

Table 9.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
FA-----------------Fausse	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding, too clayey.
Fb, Fe-------------Feliciana	Slight-----------	Slight-----------	Slight-----------	Severe: low strength.	Slight.
Fg-----------------Feliciana	Slight-----------	Slight-----------	Moderate: slope.	Severe: low strength.	Slight.
FH*:					
Feliciana---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Natchez-----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Fk-----------------Fluker	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness.	Severe: wetness.
Fr-----------------Frost, ponded	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
Ke-----------------Kenefick	Slight-----------	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, low strength.	Slight.
LA*:					
Latanier----------	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, flooding.	Severe: too clayey.
Moreland----------	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness, too clayey.
Lo-----------------Loring	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: low strength.	Slight.
Lr-----------------Loring	Severe: wetness.	Moderate: wetness.	Moderate: wetness, slope.	Severe: low strength.	Slight.
Lt-----------------Lytle	Slight-----------	Slight-----------	Slight-----------	Severe: low strength.	Slight.
Ly-----------------Lytle	Slight-----------	Slight-----------	Moderate: slope.	Severe: low strength.	Slight.
MB*:					
Morganfield-------	Moderate: cutbanks cave, wetness, flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.

See footnote at end of table.

Table 9.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
MB*:					
Bigbee	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
Oa, Ob: Olivier	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.	Moderate: wetness.
OG*:					
Ouachita	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Ochlockonee	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Guyton	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
PA*:					
Pits	Variable	Variable	Variable	Variable	Variable.
Arents	Slight	Slight	Slight	Slight	Slight.
RA*: Riverwash	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, droughty, flooding.
RC*:					
Robinsonville	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
Convent	Severe: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
Rs: Ruston	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
Sa: Sharkey	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness, too clayey.
SH: Sharkey	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness, flooding, too clayey.
SM: Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Ta: Tangi	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: low strength.	Moderate: wetness.
Tg: Tangi	Severe: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Severe: low strength.	Moderate: wetness.

See footnote at end of table.

Table 9.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
To---------------- Toula	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: low strength.	Moderate: wetness.
Ts*:					
Tunica-----------	Severe: wetness.	Severe: shrink-swell, flooding.	Severe: shrink-swell, flooding.	Severe: shrink-swell, low strength.	Severe: too clayey.
Sharkey----------	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness, too clayey.
TU*:					
Tunica-----------	Severe: wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.
Sharkey----------	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness, too clayey.
UB*--------------- Urban land	Variable---------	Variable---------	Variable---------	Variable---------	Variable.
We---------------- Weyanoke	Moderate: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 10.--Sanitary Facilities

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AR: Arat	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding, excess humus.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
Bd: Bude	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: hard to pack, wetness.
Ca: Calhoun	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Cb: Calhoun	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
CC*:					
Calhoun	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Cascilla	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Fair: too clayey.
Ce: Commerce	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: thin layer.
CM*, CN: Commerce	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: thin layer.
Co: Convent	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
CR: Crevasse	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
De: Deerford	Severe: wetness, percs slowly.	Slight	Severe: wetness, excess sodium.	Severe: wetness.	Poor: wetness, excess sodium.
Dx: Dexter	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
FA: Fausse	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.

See footnote at end of table.

Table 10.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Fb: Feliciana	Moderate: percs slowly.	Moderate: seepage.	Slight	Slight	Good.
Fe, Fg: Feliciana	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
FH*:					
Feliciana	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Natchez	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Fk: Fluker	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Fr: Frost, ponded	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
Ke: Kenefick	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight	Fair: too clayey.
LA*:					
Latanier	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Moreland	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Lo, Lr: Loring	Severe: wetness, percs slowly.	Moderate: slope.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
Lt, Ly: Lytle	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, thin layer.
MB*:					
Morganfield	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
Bigbee	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
Oa: Olivier	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.

See footnote at end of table.

Table 10.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ob------------------ Olivier	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
OG*:					
Ouachita-----------	Severe: flooding, percs slowly.	Severe: flooding.	Severe: flooding, seepage.	Severe: flooding.	Fair: too clayey.
Ochlockonee--------	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Fair: wetness.
Guyton-------------	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
PA*:					
Pits---------------	Variable---------	Variable---------	Variable---------	Variable---------	Variable.
Arents-------------	Slight-----------	Moderate: slope.	Slight-----------	Slight-----------	Good.
RA*----------------- Riverwash	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
RC*:					
Robinsonville------	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Fair: too sandy.
Convent------------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
Rs------------------ Ruston	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too sandy.	Slight-----------	Fair: too sandy.
Sa------------------ Sharkey	Severe: wetness, percs slowly.	Slight-----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
SH------------------ Sharkey	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
SM------------------ Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.

See footnote at end of table.

Table 10.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ta, Tg: Tangi	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness, thin layer.
To: Toula	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
Ts*:					
Tunica	Severe: wetness, percs slowly, ponding.	Severe: flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Fair: too clayey, wetness.
Sharkey	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
TU*:					
Tunica	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Sharkey	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
UB*: Urban land	Variable	Variable	Variable	Variable	Variable.
We: Weyanoke	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 11.--Construction Materials

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Topsoil
AR: Arat	Poor: low strength, wetness.	Improbable: excess fines.	Poor: wetness.
Bd: Bude	Poor: low strength, wetness.	Improbable: excess fines.	Poor: wetness.
Ca, Cb: Calhoun	Poor: low strength, wetness.	Improbable: excess fines.	Poor: wetness.
CC*:			
Calhoun	Poor: low strength, wetness.	Improbable: excess fines.	Poor: wetness.
Cascilla	Fair: low strength.	Improbable: excess fines.	Fair: too clayey.
Ce, CM*, CN: Commerce	Poor: low strength.	Improbable: excess fines.	Fair: too clayey, thin layer.
Co: Convent	Fair: wetness.	Improbable: excess fines.	Good.
CR: Crevasse	Good	Probable	Poor: too sandy.
De: Deerford	Poor: low strength, wetness.	Improbable: excess fines.	Poor: wetness, excess sodium.
Dx: Dexter	Good	Improbable: excess fines.	Fair: too clayey.
FA: Fausse	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Poor: too clayey, wetness.
Fb, Fe, Fg: Feliciana	Poor: low strength.	Improbable: excess fines.	Fair: too clayey.
FH*:			
Feliciana	Poor: low strength.	Improbable: excess fines.	Poor: slope.
Natchez	Poor: slope.	Improbable: excess fines.	Poor: slope.
Fk: Fluker	Poor: wetness.	Improbable: excess fines.	Poor: wetness.

See footnote at end of table.

Table 11.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Topsoil
Fr: Frost, ponded	Poor: low strength, wetness.	Improbable: excess fines.	Poor: wetness.
Ke: Kenefick	Good	Improbable: excess fines.	Fair: too clayey.
LA*:			
Latanier	Fair: wetness.	Improbable: excess fines.	Poor: too clayey.
Moreland	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Poor: too clayey, wetness.
Lo, Lr: Loring	Poor: low strength.	Improbable: excess fines.	Good.
Lt, Ly: Lytle	Fair: shrink-swell.	Improbable: excess fines.	Fair: too clayey.
MB*:			
Morganfield	Good	Improbable: excess fines.	Good.
Bigbee	Good	Probable	Poor: too sandy.
Oa, Ob: Olivier	Poor: low strength.	Improbable: excess fines.	Fair: too clayey.
OG*:			
Ouachita	Good	Improbable: excess fines.	Fair: too clayey.
Ochlockonee	Good	Improbable: excess fines.	Good.
Guyton	Poor: wetness.	Improbable: excess fines.	Poor: wetness.
PA*:			
Pits	Variable	Variable	Variable.
Arents	Good	Improbable: excess fines.	Good.
RA*: Riverwash	Poor: wetness.	Probable	Poor: small stones, area reclaim, wetness.
RC*:			
Robinsonville	Good	Improbable: excess fines.	Fair: too sandy.
Convent	Fair: wetness.	Improbable: excess fines.	Good.

See footnote at end of table.

Table 11.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Topsoil
Rs: Ruston	Good	Improbable: excess fines.	Fair: too sandy, small stones.
Sa, SH: Sharkey	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Poor: too clayey, wetness.
SM: Smithdale	Fair: slope.	Improbable: excess fines.	Poor: slope.
Ta, Tg: Tangi	Poor: low strength.	Improbable: excess fines.	Fair: area reclaim, too clayey.
To: Toula	Fair: low strength, wetness.	Improbable: excess fines.	Poor: area reclaim.
Ts*, TU*:			
Tunica	Fair: wetness.	Improbable: excess fines.	Poor: too clayey.
Sharkey	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Poor: too clayey, wetness.
UB*: Urban land	Variable	Variable	Variable.
We: Weyanoke	Fair: wetness.	Improbable: excess fines.	Good.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 12.--Water Management

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
AR: Arat	Slight	Severe: ponding, piping.	Severe: slow refill.	Ponding, flooding, percs slowly.	Ponding, flooding, percs slowly.	Erodes easily, ponding, percs slowly.	Wetness, erodes easily, percs slowly.
Bd: Bude	Moderate: seepage.	Severe: wetness.	Severe: no water.	Percs slowly	Wetness, percs slowly.	Erodes easily, wetness, rooting depth.	Wetness, erodes easily, rooting depth.
Ca: Calhoun	Slight	Severe: piping, wetness.	Severe: no water.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily, percs slowly.
Cb: Calhoun	Slight	Severe: piping, wetness.	Severe: no water.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily, percs slowly.
CC*:							
Calhoun	Slight	Severe: piping, wetness.	Severe: no water.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily, percs slowly.
Cascilla	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily, flooding.	Erodes easily	Erodes easily.
Ce: Commerce	Moderate: seepage.	Severe: thin layer, wetness.	Severe: slow refill.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.
CM*, CN: Commerce	Moderate: seepage.	Severe: thin layer, wetness.	Severe: slow refill.	Flooding	Wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.
Co: Convent	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.
CR: Crevasse	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Too sandy	Droughty.
De: Deerford	Slight	Severe: wetness, excess sodium, piping.	Severe: no water.	Percs slowly, excess sodium.	Wetness, percs slowly, rooting depth.	Erodes easily, wetness.	Wetness, excess sodium, erodes easily.
Dx: Dexter	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily	Erodes easily.
FA: Fausse	Slight	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
Fb, Fe: Feliciana	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily	Erodes easily.

See footnote at end of table.

Table 12.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Fg: Feliciana	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
FH*:							
Feliciana	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
Natchez	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
Fk: Fluker	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Percs slowly	Wetness, percs slowly, rooting depth.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, rooting depth.
Fr: Frost, ponded	Slight	Severe: ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, percs slowly, erodes easily.	Erodes easily, ponding, percs slowly.	Wetness, erodes easily, percs slowly.
Ke: Kenefick	Moderate: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Soil blowing	Soil blowing	Favorable.
LA*:							
Latanier	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Moreland	Slight	Severe: hard to pack, wetness.	Severe: no water.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Lo: Loring	Moderate: seepage.	Moderate: piping, wetness.	Severe: no water.	Percs slowly	Percs slowly, rooting depth, erodes easily.	Erodes easily, wetness, rooting depth.	Erodes easily, rooting depth.
Lr: Loring	Moderate: seepage, slope.	Moderate: piping, wetness.	Severe: no water.	Percs slowly, slope.	Percs slowly, rooting depth, slope.	Erodes easily, wetness, rooting depth.	Erodes easily, rooting depth.
Lt: Lytle	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily	Erodes easily.
Ly: Lytle	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
MB*:							
Morganfield	Moderate: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Deep to water	Erodes easily, flooding.	Erodes easily	Erodes easily.
MB*:							
Bigbee	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Too sandy	Droughty.

See footnote at end of table.

Table 12.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Oa, Ob: Olivier	Slight	Severe: piping.	Severe: no water.	Percs slowly	Wetness, percs slowly.	Erodes easily, wetness, rooting depth.	Wetness, erodes easily, rooting depth.
OG*:							
Ouachita	Slight	Severe: piping.	Severe: no water.	Deep to water	Erodes easily, flooding.	Erodes easily	Erodes easily.
Ochlockonee	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Deep to water	Flooding	Favorable	Favorable.
Guyton	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
PA*:							
Pits	Variable	Variable	Variable	Variable	Variable	Variable	Variable.
Arents	Moderate: slope.	Slight	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
RA*: Riverwash	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy.	Wetness, droughty.
RC*:							
Robinsonville	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Deep to water	Flooding	Favorable	Favorable.
Convent	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
Rs: Ruston	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, soil blowing.	Too sandy, soil blowing.	Favorable.
Sa: Sharkey	Slight	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly	Wetness, droughty.	Wetness, percs slowly.	Wetness, percs slowly.
SH: Sharkey	Slight	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, droughty.	Wetness, percs slowly.	Wetness, percs slowly.
SM: Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Ta: Tangi	Moderate: seepage.	Moderate: piping, wetness.	Severe: no water.	Percs slowly	Wetness, percs slowly.	Erodes easily, wetness, rooting depth.	Erodes easily, percs slowly, rooting depth.
Tg: Tangi	Moderate: slope, seepage.	Moderate: piping, wetness.	Severe: no water.	Percs slowly, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness, rooting depth.	Erodes easily, percs slowly, rooting depth.

See footnote at end of table.

Table 12.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
To----------------- Toula	Moderate: seepage.	Moderate: piping, wetness.	Severe: no water.	Percs slowly---	Wetness, percs slowly.	Erodes easily, wetness, rooting depth.	Erodes easily, rooting depth, percs slowly.
Ts*:							
Tunica------------	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, slow intake.	Wetness, percs slowly.	Percs slowly.
Sharkey-----------	Slight------	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, droughty.	Wetness, percs slowly.	Wetness, percs slowly.
TU*:							
Tunica------------	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly---	Wetness, slow intake.	Wetness, percs slowly.	Percs slowly.
Sharkey-----------	Slight------	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly---	Wetness, droughty.	Wetness, percs slowly.	Wetness, percs slowly.
UB*--------------- Urban land	Variable----	Variable-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
We---------------- Weyanoke	Slight------	Severe: piping.	Severe: slow refill.	Favorable------	Wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 13.--Engineering Index Properties

(The symbol < means less than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
AR---------------- Arat	0-5	Muck	Pt	A-8	0	---	---	---	---	---	---
	5-12	Mucky silt loam, silt loam, silty clay loam.	ML, CL-ML, CL, OL	A-4, A-6	0	100	100	90-100	75-95	<40	NP-22
	12-60	Silty clay loam, silt loam, mucky silty clay loam.	CL, CL-ML	A-6, A-4, A-7-6	0	100	100	90-100	80-95	22-45	6-25
Bd---------------- Bude	0-11	Silt loam--------	CL	A-6	0	100	100	95-100	85-96	25-40	11-25
	11-27	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	95-100	84-98	35-50	15-30
	27-60	Silt loam, clay loam, silty clay loam.	CL, CH	A-7, A-6	0	100	100	95-100	75-90	35-65	15-40
Ca---------------- Calhoun	0-20	Silt loam--------	CL-ML, ML, CL	A-4	0	100	100	100	95-100	<31	NP-10
	20-31	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	95-100	95-100	30-45	11-24
	31-60	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	0	100	100	100	90-100	25-40	5-20
Cb---------------- Calhoun	0-12	Silt loam--------	CL-ML, ML, CL	A-4	0	100	100	100	95-100	<31	NP-10
	12-45	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	95-100	95-100	30-45	11-24
	45-60	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	0	100	100	100	90-100	25-40	5-20
CC*:											
Calhoun---------	0-26	Silt loam--------	CL-ML, ML, CL	A-4	0	100	100	100	95-100	<31	NP-10
	26-38	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	95-100	95-100	30-45	11-24
	38-60	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	0	100	100	100	90-100	25-40	5-20
Cascilla--------	0-6	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	75-95	20-38	3-15
	6-50	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	100	100	95-100	75-100	20-39	5-15
	50-60	Fine sandy loam, loam, silt loam.	SM, ML, CL-ML, SC-SM	A-4	0	100	100	80-95	45-85	<30	NP-7
Ce---------------- Commerce	0-5	Silt loam--------	CL-ML, CL, ML	A-4	0	100	100	100	75-100	<30	NP-10
	5-31	Silty clay loam, silt loam, loam.	CL	A-6, A-7-6	0	100	100	100	85-100	32-45	11-23
	31-60	Very fine sandy loam, silt loam, silty clay loam.	CL-ML, CL, ML	A-4, A-6, A-7-6	0	100	100	100	75-100	23-45	3-23

See footnote at end of table.

Table 13.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
CM*: Commerce	0-8	Silt loam	CL-ML, CL, ML	A-4	0	100	100	100	75-100	<30	NP-10
	8-24	Silty clay loam, silt loam, loam.	CL	A-6, A-7-6	0	100	100	100	85-100	32-45	11-23
	24-60	Very fine sandy loam, silt loam, silty clay loam.	CL-ML, CL, ML	A-4, A-6, A-7-6	0	100	100	100	75-100	23-45	3-23
CN: Commerce	0-4	Silty clay loam	CL	A-6, A-7-6	0	100	100	100	90-100	32-50	11-25
	4-44	Silty clay loam, silt loam, loam.	CL	A-6, A-7-6	0	100	100	100	85-100	32-45	11-23
	44-60	Very fine sandy loam, silt loam, silty clay loam.	CL-ML, CL, ML	A-4, A-6, A-7-6	0	100	100	100	75-100	23-45	3-23
Co: Convent	0-9	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	85-100	<27	NP-7
	9-60	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	75-100	<27	NP-7
CR: Crevasse	0-6	Loamy sand	SM	A-2	0	100	95-100	60-100	15-30	---	NP
	6-60	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	95-100	50-100	5-20	---	NP
De: Deerford	0-10	Silt loam	ML, CL-ML	A-4	0	100	100	100	95-100	<28	NP-7
	10-24	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	100	95-100	32-49	11-25
	24-60	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4, A-7-6	0	100	100	80-100	70-95	25-49	5-25
Dx: Dexter	0-5	Silt loam	ML, SM, CL-ML, SC-SM	A-4	0	100	100	85-100	45-75	<25	NP-4
	5-9	Silt loam, loam	CL, CL-ML	A-4, A-6	0	100	100	90-100	65-90	15-38	5-16
	9-31	Silty clay loam, clay loam, silt loam.	CL	A-6, A-4	0	100	100	90-100	70-90	28-40	8-18
	31-60	Sandy clay loam, sandy loam, loamy sand.	SC, SM, CL, ML	A-6, A-4, A-2-4	0	100	100	75-95	25-55	10-30	NP-15
FA: Fausse	0-5	Clay	CH, OH, MH	A-7-6	0	100	100	100	95-100	60-100	31-71
	5-32	Clay, mucky clay	CH, OH, MH	A-7-6	0	100	100	100	95-100	60-100	31-71
	32-60	Clay, silty clay, silty clay loam.	CH, MH, CL, ML	A-7-6	0	100	100	100	95-100	45-100	16-71
Fb: Feliciana	0-5	Silt loam	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<30	NP-10
	5-46	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	35-48	15-25
	46-65	Silt loam	ML, CL	A-4, A-6	0	100	100	100	90-100	30-40	6-15
Fe, Fg: Feliciana	0-4	Silt loam	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<30	NP-10
	4-50	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	35-48	15-25
	50-60	Silt loam	ML, CL	A-4, A-6	0	100	100	100	90-100	30-40	6-15

See footnote at end of table.

Table 13.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
FH*:											
Feliciana-------	0-2	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<30	NP-10
	2-41	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	35-48	15-25
	41-60	Silt loam--------	ML, CL	A-4, A-6	0	100	100	100	90-100	30-40	6-15
Natchez---------	0-2	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	100	85-100	<30	NP-10
	2-41	Silt loam, silt	ML, CL-ML, CL.	A-4	0	100	100	100	85-100	<30	NP-10
	41-60	Silt loam, silt	ML, CL-ML	A-4	0	100	100	100	85-100	<30	NP-7
Fk--------------- Fluker	0-6	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	70-95	<25	NP-7
	6-12	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	95-100	80-95	17-30	6-19
	12-37	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	80-95	20-40	10-20
	37-60	Loam, silt loam, fine sandy loam.	ML, CL, SC-SM, SC	A-4, A-6	0	100	100	70-90	36-75	16-30	3-14
Fr--------------- Frost, ponded	0-15	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	100	80-100	15-30	5-15
	15-60	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	100	90-100	35-50	15-25
Ke--------------- Kenefick	0-8	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-4	0	100	100	75-100	40-60	16-22	NP-6
	8-42	Sandy clay loam, clay loam, loam.	CL	A-6	0	100	100	80-100	55-85	29-38	10-15
	42-58	Fine sandy loam, sandy loam.	SC, SM, CL-ML, ML	A-4, A-2-4	0	100	100	60-85	30-55	10-28	NP-10
	58-70	Stratified very fine sandy loam to sand.	SM, ML	A-2-4, A-4	0	95-100	80-100	70-100	25-60	16-21	NP-4
LA*:											
Latanier--------	0-4	Clay-------------	CH	A-7-6	0	100	100	100	95-100	51-75	26-45
	4-27	Clay, silty clay	CH	A-7-6	0	100	100	100	95-100	51-75	26-45
	27-60	Silt loam, silty clay loam, very fine sandy loam.	CL-ML, CL, ML	A-4, A-6	0	100	100	100	80-100	<40	NP-17
Moreland--------	0-10	Clay-------------	CH	A-7-6	0	100	95-100	90-100	90-100	51-74	25-45
	10-60	Clay, silty clay loam, silty clay.	CH, CL	A-7-6, A-6	0	100	100	100	90-100	35-74	20-45
Lo--------------- Loring	0-10	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	90-100	<35	NP-15
	10-23	Silt loam, silty clay loam.	CL, ML	A-6, A-7, A-4	0	100	100	95-100	90-100	32-48	10-20
	23-51	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	100	100	95-100	90-100	30-45	10-22
	51-60	Silt loam--------	CL, ML	A-4, A-6	0	100	100	95-100	70-100	28-40	7-16
Lr--------------- Loring	0-10	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	100	100	95-100	90-100	<35	NP-15
	10-18	Silt loam, silty clay loam.	CL, ML	A-6, A-7, A-4	0	100	100	95-100	90-100	32-48	10-20
	18-55	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	100	100	95-100	90-100	30-45	10-22
	55-70	Silt loam--------	CL, ML	A-4, A-6	0	100	100	95-100	70-100	28-40	7-16

See footnote at end of table.

Table 13.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
Lt---------------- Lytle	0-6	Silt loam--------	ML, CL-ML	A-4	0	100	95-100	95-100	80-95	<30	NP-7
	6-24	Loam, silt loam, silty clay loam.	CL	A-4, A-6	0	100	95-100	85-100	75-95	20-35	8-18
	24-36	Sandy loam, loam, silt loam.	SC-SM, CL, CL-ML	A-4, A-6, A-2-6	0	100	95-100	50-95	20-65	20-35	5-15
	36-70	Sandy clay loam, clay loam, sandy clay.	SC	A-6, A-7-6, A-2-6	0	100	95-100	50-70	20-40	30-60	12-40
Ly---------------- Lytle	0-11	Silt loam--------	ML, CL-ML	A-4	0	100	95-100	95-100	80-95	<30	NP-7
	11-28	Loam, silt loam, silty clay loam.	CL	A-4, A-6	0	.100	95-100	85-100	75-95	20-35	8-18
	28-38	Sandy loam, loam, silt loam.	SC-SM, CL, CL-ML	A-4, A-6, A-2-6	0	100	95-100	50-95	20-65	20-35	5-15
	38-81	Sandy clay loam, clay loam, sandy clay.	SC	A-6, A-7-6, A-2-6	0	100	95-100	50-70	20-40	30-60	12-40
MB*: Morganfield-----	0-4	Silt loam--------	ML, CL, CL-ML	A-4	0	100	100	95-100	65-95	<30	NP-10
	4-60	Silt loam, silt, very fine sandy loam.	ML, CL, CL-ML	A-4	0	100	100	95-100	65-95	<30	NP-10
Bigbee-----------	0-36	Loamy sand-------	SM	A-2-4	0	100	95-100	60-90	15-30	---	NP
	36-60	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	85-100	85-100	50-75	5-20	---	NP
Oa---------------- Olivier	0-10	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	95-100	<27	NP-7
	10-24	Silty clay loam, silt loam.	CL	A-6	0	100	100	100	95-100	32-40	11-17
	24-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	100	95-100	25-35	5-14
Ob---------------- Olivier	0-12	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	95-100	<27	NP-7
	12-26	Silty clay loam, silt loam.	CL	A-6	0	100	100	100	95-100	32-40	11-17
	26-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	100	95-100	25-35	5-14
OG*: Ouachita---------	0-7	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	85-95	55-85	<30	2-10
	7-40	Silt loam, loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	100	100	85-95	55-90	25-40	5-15
	40-60	Fine sandy loam, silt loam.	SM, ML, CL-ML, SC-SM	A-4	0	100	100	70-95	40-90	15-25	NP-7
Ochlockonee-----	0-6	Fine sandy loam	SM, ML, SC-SM, CL-ML	A-4, A-2	0	100	95-100	65-90	40-70	<26	NP-5
	6-42	Fine sandy loam, sandy loam, silt loam.	SM, ML, SC, CL	A-4	0	100	95-100	95-100	36-75	<32	NP-9
	42-60	Loamy sand, sandy loam, silt loam.	SM, ML, CL, SC	A-4, A-2	0	100	95-100	85-99	13-80	<32	NP-9

See footnote at end of table.

Table 13.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
OG*:											
Guyton----------	0-25	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	65-90	<27	NP-7
	25-35	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-6, A-4	0	100	100	94-100	75-95	22-40	6-18
	35-65	Silt loam, silty clay loam, sandy clay loam.	CL, CL-ML, ML	A-6, A-4	0	100	100	95-100	50-95	<40	NP-18
PA*:											
Pits------------	0-60	Variable---------	---	---	---	---	---	---	---	---	---
Arents----------	0-60	Variable---------	---	---	---	---	---	---	---	---	---
RA*-------------- Riverwash	0-80	Sand-------------	SW-SM, SP, SP-SM	A-1-A, A-1-B	0-5	80-98	45-90	25-50	4-10	---	NP
RC*:											
Robinsonville---	0-7	Fine sandy loam	SM, ML	A-4	0	100	100	85-95	40-55	<25	NP-3
	7-60	Stratified fine sandy loam to loamy fine sand.	SM, ML	A-2, A-4	0	100	95-100	75-95	30-65	<25	NP-3
Convent---------	0-4	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	85-100	<27	NP-7
	4-60	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	75-100	<27	NP-7
Rs--------------- Ruston	0-4	Sandy loam-------	SM, ML, CL-ML	A-4, A-2-4	0	100	85-100	65-85	30-55	<20	NP-7
	4-35	Sandy clay loam, loam, clay loam.	SC, CL	A-6, A-7-6	0	100	85-100	80-95	36-75	25-45	11-20
	35-45	Fine sandy loam, sandy loam, loamy sand.	SM, ML, CL-ML, SC-SM	A-4, A-2-4	0	100	85-100	65-85	30-75	<27	NP-7
	45-60	Sandy clay loam, loam, clay loam.	SC, CL	A-6, A-7-6	0	100	85-100	80-95	36-75	25-45	11-20
Sa--------------- Sharkey	0-9	Clay-------------	CH, CL	A-7-6, A-7-5	0	100	100	100	95-100	46-85	22-50
	9-42	Clay-------------	CH	A-7-6, A-7-5	0	100	100	100	95-100	56-85	30-50
	42-60	Clay, silty clay loam, silt loam.	CL, CH	A-6, A-7-6, A-7-5	0	100	100	100	95-100	32-85	11-50
SH--------------- Sharkey	0-6	Clay-------------	CH, CL	A-7-6, A-7-5	0	100	100	100	95-100	46-85	22-50
	6-45	Clay-------------	CH	A-7-6, A-7-5	0	100	100	100	95-100	56-85	30-50
	45-60	Clay, silty clay loam, silt loam.	CL, CH	A-6, A-7-6, A-7-5	0	100	100	100	95-100	32-85	11-50
SM--------------- Smithdale	0-8	Sandy loam-------	SM, SC-SM	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	8-44	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	44-60	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10

See footnote at end of table.

Table 13.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
Ta-----------Tangi	0-5	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	80-95	<30	NP-7
	5-20	Silt loam, silty clay loam.	CL	A-4, A-6	0	100	100	95-100	80-95	20-35	8-18
	20-58	Clay loam, sandy clay loam, loam.	CL, SC	A-6, A-7-6	0	100	100	80-95	40-80	25-49	11-25
	58-80	Clay, clay loam, sandy clay.	CL, CH, SC	A-7-6, A-7-5	0	100	100	85-95	45-85	41-70	16-38
Tg-----------Tangi	0-4	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	80-95	<30	NP-7
	4-19	Silt loam, silty clay loam.	CL	A-4, A-6	0	100	100	95-100	80-95	20-35	8-18
	19-55	Clay loam, sandy clay loam, loam.	CL, SC	A-6, A-7-6	0	100	100	80-95	40-80	25-49	11-25
	55-60	Clay, clay loam, sandy clay.	CL, CH, SC	A-7-6, A-7-5	0	100	100	85-95	45-85	41-70	16-38
To-----------Toula	0-7	Silt loam--------	ML, CL-ML	A-4	0	100	100	95-100	80-95	<30	NP-7
	7-27	Silt loam, silty clay loam.	CL	A-4, A-6	0	100	100	95-100	80-95	20-35	8-18
	27-50	Silt loam, silty clay loam, clay loam.	CL	A-6	0	100	100	80-100	65-80	25-40	11-20
	50-65	Silt loam, silty clay loam, clay loam.	CL	A-4, A-6	0	100	100	80-100	65-80	20-40	8-20
Ts*:											
Tunica----------	0-6	Clay-------------	CH	A-7	0	100	98-100	95-100	90-100	50-92	25-62
	6-26	Clay, silty clay	CH	A-7	0	100	98-100	95-100	90-100	50-92	25-62
	26-60	Fine sandy loam, loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	95-100	65-100	51-100	<40	NP-20
Sharkey---------	0-7	Clay-------------	CH, CL	A-7-6, A-7-5	0	100	100	100	95-100	46-85	22-50
	7-43	Clay-------------	CH	A-7-6, A-7-5	0	100	100	100	95-100	56-85	30-50
	43-60	Clay, silty clay loam, silt loam.	CL, CH	A-6, A-7-6, A-7-5	0	100	100	100	95-100	32-85	11-50
TU*:											
Tunica----------	0-11	Clay-------------	CH	A-7	0	100	98-100	95-100	90-100	50-92	25-62
	11-33	Clay, silty clay	CH	A-7	0	100	98-100	95-100	90-100	50-92	25-62
	33-60	Fine sandy loam, loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	95-100	65-100	51-100	<40	NP-20
Sharkey---------	0-6	Clay-------------	CH, CL	A-7-6, A-7-5	0	100	100	100	95-100	46-85	22-50
	6-36	Clay-------------	CH	A-7-6, A-7-5	0	100	100	100	95-100	56-85	30-50
	36-60	Clay, silty clay loam, silt loam.	CL, CH	A-6, A-7-6, A-7-5	0	100	100	100	95-100	32-85	11-50
UB*-----------Urban land	0-6	Variable---------	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 13.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
We--------------- Weyanoke	0-3	Silt-------------	ML	A-4	0	100	100	90-100	85-95	<30	NP-7
	3-27	Silt loam, silt, very fine sandy loam.	ML, CL, CL-ML	A-4	0	100	100	90-100	90-100	<30	NP-10
	27-60	Silt loam, loam, very fine sandy loam.	ML, CL, CL-ML	A-4	0	100	100	85-95	60-85	<30	NP-8

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 14.--Physical and Chemical Properties of the Soils

(The symbol < means less than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH				Pct
AR----------------	0-5	---	0.05-0.25	2.0-6.0	0.20-0.50	5.1-6.5	Low----------	---	---	30-90
Arat	5-12	10-32	0.25-1.00	0.6-2.0	0.18-0.23	5.1-7.3	Low----------	0.43		
	12-60	14-35	0.25-1.00	0.06-0.2	0.18-0.20	4.5-7.8	Low----------	0.37		
Bd----------------	0-11	10-27	1.40-1.60	0.6-2.0	0.21-0.24	4.5-6.0	Low----------	0.49	3	.5-2
Bude	11-27	10-32	1.40-1.65	0.06-0.2	0.14-0.23	4.5-6.0	Moderate-----	0.43		
	27-60	16-32	1.40-1.65	0.06-0.2	0.11-0.23	4.5-6.0	Moderate-----	0.37		
Ca----------------	0-20	10-27	1.30-1.65	0.2-0.6	0.21-0.23	3.6-6.0	Low----------	0.49	5	.5-5
Calhoun	20-31	22-35	1.30-1.65	0.06-0.2	0.20-0.22	3.6-7.3	Moderate-----	0.43		
	31-60	10-30	1.30-1.65	0.2-0.6	0.21-0.23	3.6-7.8	Low----------	0.43		
Cb----------------	0-12	10-27	1.30-1.65	0.2-0.6	0.21-0.23	3.6-6.0	Low----------	0.49	5	.5-5
Calhoun	12-45	22-35	1.30-1.65	0.06-0.2	0.20-0.22	3.6-7.3	Moderate-----	0.43		
	45-60	10-30	1.30-1.65	0.2-0.6	0.21-0.23	3.6-7.8	Low----------	0.43		
CC*:										
Calhoun----------	0-26	10-27	1.30-1.65	0.2-0.6	0.21-0.23	3.6-6.0	Low----------	0.49	5	.5-5
	26-38	22-35	1.30-1.65	0.06-0.2	0.20-0.22	3.6-7.3	Moderate-----	0.43		
	38-60	10-30	1.30-1.65	0.2-0.6	0.21-0.23	3.6-7.8	Low----------	0.43		
Cascilla---------	0-6	5-20	1.40-1.50	0.6-2.0	0.18-0.22	4.5-5.5	Low----------	0.43	5	1-4
	6-50	18-30	1.45-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low----------	0.43		
	50-60	5-25	1.40-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low----------	0.43		
Ce----------------	0-5	14-27	1.35-1.65	0.6-2.0	0.21-0.23	5.6-8.4	Low----------	0.43	5	.5-4
Commerce	5-31	14-39	1.35-1.65	0.2-0.6	0.20-0.22	6.1-8.4	Moderate-----	0.32		
	31-60	14-39	1.35-1.65	0.2-2.0	0.20-0.23	6.6-8.4	Low----------	0.37		
CM*---------------	0-8	14-27	1.35-1.65	0.6-2.0	0.21-0.23	5.6-8.4	Low----------	0.43	5	.5-4
Commerce	8-24	14-39	1.35-1.65	0.2-0.6	0.20-0.22	6.1-8.4	Moderate-----	0.32		
	24-60	14-39	1.35-1.65	0.2-2.0	0.20-0.23	6.6-8.4	Low----------	0.37		
CN----------------	0-4	27-39	1.25-1.45	0.2-0.6	0.15-0.19	5.6-8.4	Moderate-----	0.37	5	.5-4
Commerce	4-44	14-39	1.35-1.65	0.2-0.6	0.20-0.22	6.1-8.4	Moderate-----	0.32		
	44-60	14-39	1.35-1.65	0.2-2.0	0.20-0.23	6.6-8.4	Low----------	0.37		
Co----------------	0-9	0-18	1.30-1.65	0.6-2.0	0.18-0.23	5.6-8.4	Low----------	0.43	5	.5-3
Convent	9-60	0-18	1.30-1.65	0.6-2.0	0.20-0.23	5.6-8.4	Low----------	0.37		
CR----------------	0-6	5-12	1.45-1.55	6.0-20	0.06-0.10	5.6-8.4	Low----------	0.10	5	.1-2
Crevasse	6-60	2-8	1.40-1.50	6.0-20	0.02-0.06	5.6-8.4	Low----------	0.15		
De----------------	0-10	5-27	1.30-1.70	0.6-2.0	0.21-0.23	4.5-6.5	Low----------	0.49	3	.5-4
Deerford	10-24	10-35	1.30-1.80	0.06-0.2	0.12-0.18	4.5-8.4	Moderate-----	0.49		
	24-60	10-35	1.30-1.80	0.2-0.6	0.12-0.18	6.6-8.4	Moderate-----	0.49		
Dx----------------	0-5	10-27	1.30-1.70	0.6-2.0	0.15-0.24	4.5-7.3	Low----------	0.43	5	.5-4
Dexter	5-9	10-27	1.30-1.70	0.6-2.0	0.15-0.24	4.5-6.0	Low----------	0.43		
	9-31	10-35	1.40-1.70	0.6-2.0	0.15-0.24	4.5-6.0	Low----------	0.32		
	31-60	10-30	1.30-1.70	0.6-6.0	0.08-0.18	4.5-6.0	Low----------	0.24		
FA----------------	0-5	40-95	0.80-1.45	<0.06	0.18-0.20	5.6-7.3	Very high----	0.20	5	2-15
Fausse	5-32	40-95	0.80-1.45	<0.06	0.18-0.20	5.6-7.3	Very high----	0.20		
	32-60	35-95	1.10-1.45	<0.2	0.18-0.20	6.6-8.4	Very high----	0.24		

See footnote at end of table.

Table 14.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH				Pct
Fb---------------Feliciana	0-5	8-22	1.30-1.50	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.49	5	1-6
	5-46	20-35	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49		
	46-65	12-25	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low----------	0.49		
Fe---------------Feliciana	0-5	8-22	1.30-1.50	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.49	5	1-6
	5-46	20-35	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low----------	0.49		
	46-65	12-25	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low----------	0.49		
Fg---------------Feliciana	0-4	8-22	1.30-1.50	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.49	5	1-6
	4-50	20-35	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49		
	50-60	12-25	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low----------	0.49		
FH*:										
Feliciana-------	0-2	8-22	1.30-1.50	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.49	5	1-6
	2-41	20-35	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49		
	41-60	12-25	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low----------	0.49		
Natchez---------	0-2	8-18	1.30-1.45	0.6-2.0	0.20-0.24	5.1-7.3	Low----------	0.49	5	.5-3
	2-41	8-18	1.30-1.45	0.6-2.0	0.20-0.24	4.5-7.3	Low----------	0.49		
	41-60	8-18	1.30-1.45	0.6-2.0	0.20-0.24	6.6-8.4	Low----------	0.49		
Fk---------------Fluker	0-6	2-12	1.35-1.65	0.6-2.0	0.14-0.24	3.6-6.0	Low----------	0.49	4	.5-4
	6-12	6-18	1.35-1.65	0.6-2.0	0.20-0.24	3.6-6.0	Low----------	0.49		
	12-37	18-33	1.35-1.65	0.6-2.0	0.20-0.24	3.6-6.0	Low----------	0.43		
	37-60	6-22	1.45-1.90	0.06-0.2	0.01-0.10	3.6-6.0	Low----------	0.32		
Fr---------------Frost, ponded	0-15	8-22	1.35-1.65	0.2-0.6	0.21-0.23	4.5-6.5	Low----------	0.49	5	.5-4
	15-60	18-35	1.35-1.70	0.06-0.2	0.20-0.22	4.5-8.4	Moderate-----	0.37		
Ke---------------Kenefick	0-8	5-15	1.30-1.45	2.0-6.0	0.11-0.15	4.5-6.5	Low----------	0.24	5	.2-2
	8-42	20-34	1.35-1.55	0.6-2.0	0.12-0.18	4.5-6.5	Moderate-----	0.32		
	42-58	10-24	1.50-1.65	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.37		
	58-70	2-15	1.50-1.69	2.0-6.0	0.06-0.14	4.5-5.5	Low----------	0.24		
LA*:										
Latanier--------	0-4	40-55	1.20-1.45	<0.06	0.15-0.19	6.6-8.4	Very high----	0.32	5	1-4
	4-27	40-55	1.20-1.45	<0.06	0.15-0.19	6.6-8.4	Very high----	0.32		
	27-60	10-27	1.30-1.65	0.06-2.0	0.18-0.22	6.6-8.4	Low----------	0.37		
Moreland--------	0-10	39-50	1.20-1.50	<0.06	0.12-0.18	6.1-7.8	Very high----	0.32	5	1-4
	10-60	35-60	1.20-1.70	<0.2	0.12-0.21	6.6-8.4	High---------	0.32		
Lo---------------Loring	0-10	8-18	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low----------	0.49	4-3	.5-2
	10-23	18-32	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.5	Low----------	0.43		
	23-51	15-30	1.50-1.70	0.06-0.2	0.06-0.13	4.5-6.0	Low----------	0.43		
	51-60	10-25	1.30-1.60	0.2-2.0	0.06-0.13	4.5-6.0	Low----------	0.43		
Lr---------------Loring	0-10	8-18	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low----------	0.49	4-3	.5-2
	10-18	18-32	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.5	Low----------	0.43		
	18-55	15-30	1.50-1.70	0.06-0.2	0.06-0.13	4.5-6.0	Low----------	0.43		
	55-70	10-25	1.30-1.60	0.2-2.0	0.06-0.13	4.5-6.0	Low----------	0.43		
Lt---------------Lytle	0-6	2-12	1.35-1.65	0.6-2.0	0.20-0.24	4.5-6.0	Low----------	0.49	3	.5-4
	6-24	18-34	1.35-1.65	0.6-2.0	0.20-0.24	4.5-6.0	Low----------	0.43		
	24-36	15-25	1.35-1.65	0.6-2.0	0.06-0.12	4.5-6.0	Low----------	0.24		
	36-70	20-55	1.35-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Moderate-----	0.37		
Ly---------------Lytle	0-11	2-12	1.35-1.65	0.6-2.0	0.20-0.24	4.5-6.0	Low----------	0.49	3	.5-4
	11-28	18-34	1.35-1.65	0.6-2.0	0.20-0.24	4.5-6.0	Low----------	0.43		
	28-38	15-25	1.35-1.65	0.6-2.0	0.06-0.12	4.5-6.0	Low----------	0.24		
	38-81	20-55	1.35-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Moderate-----	0.37		

See footnote at end of table.

Table 14.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH				Pct
MB*:										
Morganfield-----	0-4	2-5	1.40-1.50	0.6-2.0	0.20-0.23	5.6-7.8	Low----------	0.43	5	1-3
	4-60	5-18	1.40-1.55	0.6-2.0	0.20-0.23	5.6-7.8	Low----------	0.43		
Bigbee----------	0-36	4-10	1.40-1.50	6.0-20	0.05-0.10	4.5-6.0	Low----------	0.10	5	.5-2
	36-60	1-10	1.40-1.50	6.0-20	0.05-0.08	4.5-6.0	Low----------	0.17		
Oa--------------- Olivier	0-10	8-18	1.35-1.65	0.6-2.0	0.21-0.23	4.5-6.5	Low----------	0.49	4	.5-4
	10-24	18-35	1.35-1.65	0.2-0.6	0.20-0.22	4.5-5.5	Moderate-----	0.43		
	24-60	14-27	1.40-1.80	0.06-0.2	0.11-0.15	4.5-6.0	Low----------	0.43		
Ob--------------- Olivier	0-12	8-18	1.35-1.65	0.6-2.0	0.21-0.23	4.5-6.5	Low----------	0.49	4	.5-4
	12-26	18-35	1.35-1.65	0.2-0.6	0.20-0.22	4.5-5.5	Moderate-----	0.43		
	26-60	14-27	1.40-1.80	0.06-0.2	0.11-0.15	4.5-6.0	Low----------	0.43		
OG*:										
Ouachita--------	0-7	8-25	1.35-1.60	0.6-2.0	0.15-0.22	3.6-6.0	Low----------	0.37	5	1-4
	7-40	18-35	1.35-1.60	0.2-0.6	0.15-0.22	3.6-5.5	Low----------	0.32		
	40-60	8-25	1.35-1.65	0.6-6.0	0.07-0.22	4.5-5.5	Low----------	0.24		
Ochlockonee-----	0-6	3-18	1.40-1.60	2.0-6.0	0.07-0.14	3.6-5.5	Low----------	0.20	5	.5-2
	6-42	8-18	1.40-1.60	0.6-2.0	0.10-0.20	3.6-5.5	Low----------	0.20		
	42-60	3-18	1.40-1.70	2.0-6.0	0.06-0.12	3.6-5.5	Low----------	0.17		
Guyton----------	0-25	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.43	5	.5-4
	25-35	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	Low----------	0.37		
	35-65	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-8.4	Low----------	0.37		
PA*:										
Pits------------	0-60	---	---	---	---	---	-------------	---	---	---
Arents----------	0-60	---	---	---	---	---	-------------	---	---	---
RA*-------------- Riverwash	0-80	2-5	1.50-1.60	2.0-20	0.02-0.05	4.5-6.0	Low----------	0.10	5	<.5
RC*:										
Robinsonville---	0-7	2-10	1.40-1.50	2.0-6.0	0.15-0.18	6.1-8.4	Low----------	0.28	5	.5-2
	7-60	5-15	1.50-1.60	0.6-6.0	0.14-0.18	6.1-8.4	Low----------	0.32		
Convent---------	0-4	0-18	1.30-1.65	0.6-2.0	0.18-0.23	5.6-8.4	Low----------	0.43	5	.5-3
	4-60	0-18	1.30-1.65	0.6-2.0	0.20-0.23	5.6-8.4	Low----------	0.37		
Rs--------------- Ruston	0-4	2-20	1.30-1.70	0.6-2.0	0.09-0.16	3.6-6.5	Low----------	0.28	5	.5-6
	4-35	18-35	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.28		
	35-45	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	Low----------	0.28		
	45-60	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.28		
Sa--------------- Sharkey	0-9	40-60	1.20-1.50	<0.06	0.07-0.14	5.1-8.4	Very high----	0.32	5	.5-4
	9-42	60-90	1.20-1.50	<0.06	0.07-0.14	5.6-8.4	Very high----	0.28		
	42-60	25-90	1.20-1.70	0.06-0.2	0.12-0.22	5.6-8.4	High---------	0.28		
SH--------------- Sharkey	0-6	40-60	1.20-1.50	<0.06	0.12-0.18	5.1-8.4	Very high----	0.32	5	.5-4
	6-45	60-90	1.20-1.50	<0.06	0.07-0.14	5.1-8.4	Very high----	0.28		
	45-60	25-90	1.20-1.65	0.06-0.2	0.12-0.18	5.6-8.4	High---------	0.28		
SM--------------- Smithdale	0-8	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	8-44	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	44-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		

See footnote at end of table.

Table 14.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH				Pct
Ta----------------- Tangi	0-5	2-12	1.35-1.65	0.6-2.0	0.20-0.24	4.5-6.0	Low------------	0.49	4	.5-4
	5-20	18-30	1.35-1.65	0.6-2.0	0.20-0.24	4.5-6.0	Low------------	0.43		
	20-58	20-35	1.45-1.85	0.06-0.2	0.08-0.14	3.6-6.0	Low------------	0.32		
	58-80	35-55	1.40-1.80	<0.06	0.08-0.14	3.6-6.0	Moderate------	0.28		
Tg----------------- Tangi	0-4	2-12	1.35-1.65	0.6-2.0	0.20-0.24	4.5-6.0	Low------------	0.49	4	.5-4
	4-19	18-30	1.35-1.65	0.6-2.0	0.20-0.24	4.5-6.0	Low------------	0.43		
	19-55	20-35	1.45-1.85	0.06-0.2	0.08-0.14	3.6-6.0	Low------------	0.32		
	55-60	35-55	1.40-1.80	<0.06	0.08-0.14	3.6-6.0	Moderate------	0.28		
To----------------- Toula	0-7	2-12	1.35-1.65	0.6-2.0	0.22-0.25	4.5-6.0	Low------------	0.49	3	.5-4
	7-27	12-30	1.35-1.65	0.6-2.0	0.14-0.24	4.5-6.0	Low------------	0.43		
	27-50	18-35	1.45-1.85	0.06-0.2	0.08-0.12	4.5-6.0	Low------------	0.37		
	50-65	12-35	1.35-1.85	0.6-2.0	0.11-0.23	4.5-6.0	Low------------	0.37		
Ts*:										
Tunica-----------	0-6	40-75	1.45-1.55	<0.06	0.15-0.20	5.1-7.8	High----------	0.32	5	1-4
	6-26	40-75	1.45-1.55	<0.06	0.15-0.20	5.6-7.8	High----------	0.32		
	26-60	10-32	1.40-1.50	0.06-2.0	0.10-0.22	5.6-8.4	Low------------	0.32		
Sharkey----------	0-7	40-60	1.20-1.50	<0.06	0.12-0.18	5.1-8.4	Very high-----	0.32	5	.5-4
	7-43	60-90	1.20-1.50	<0.06	0.07-0.14	5.1-8.4	Very high-----	0.28		
	43-60	25-90	1.20-1.65	0.06-0.2	0.12-0.18	6.6-8.4	High----------	0.28		
TU*:										
Tunica-----------	0-11	40-75	1.45-1.55	<0.06	0.15-0.20	5.1-7.8	High----------	0.32	5	1-4
	11-33	40-75	1.45-1.55	<0.06	0.15-0.20	5.6-7.8	High----------	0.32		
	33-60	10-32	1.40-1.50	0.06-2.0	0.10-0.22	5.6-8.4	Low------------	0.32		
Sharkey----------	0-6	40-60	1.20-1.50	<0.06	0.12-0.18	5.1-8.4	Very high-----	0.32	5	.5-4
	6-36	60-90	1.20-1.50	<0.06	0.07-0.14	5.1-8.4	Very high-----	0.28		
	36-60	25-90	1.20-1.65	0.06-0.2	0.12-0.18	6.6-8.4	High----------	0.28		
UB*---------------- Urban land	0-6	---	---	---	---	---	--------------	---	---	---
We----------------- Weyanoke	0-3	12-18	1.40-1.50	0.6-2.0	0.20-0.22	5.6-7.8	Low------------	0.43	5	.5-2
	3-27	5-15	1.45-1.70	0.2-0.6	0.14-0.23	5.6-7.8	Low------------	0.43		
	27-60	5-25	1.45-1.70	0.2-0.6	0.14-0.23	5.6-7.8	Low------------	0.43		

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 15.--Soil and Water Features

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
AR: Arat	D	Frequent	Very long	Jan-Dec	+3-0.5	Apparent	Jan-Dec	High	Moderate.
Bd: Bude	C	None	---	---	0.5-1.5	Perched	Jan-Apr	High	High.
Ca: Calhoun	D	Rare	---	---	0-1.5	Perched	Dec-Apr	High	Moderate.
Cb: Calhoun	D	Occasional	Brief to long.	Dec-Jun	0-1.5	Perched	Dec-Apr	High	Moderate.
CC*:									
Calhoun	D	Frequent	Brief	Dec-Jun	0-1.5	Perched	Dec-Apr	High	Moderate.
Cascilla	B	Frequent	Brief	Jan-Apr	>6.0	---	---	Low	Moderate.
Ce: Commerce	C	None	---	---	1.5-4.0	Apparent	Dec-Apr	High	Low.
CM*: Commerce	C	Occasional	Brief to long.	Dec-Jun	1.5-4.0	Apparent	Dec-Apr	High	Low.
CN: Commerce	C	Frequent	Brief to long.	Dec-Jun	1.5-4.0	Apparent	Dec-Apr	High	Low.
Co: Convent	C	None	---	---	1.5-4.0	Apparent	Dec-Apr	High	Low.
CR: Crevasse	A	Frequent	Brief	Oct-Mar	3.5-6.0	Apparent	Nov-Mar	Low	Moderate.
De: Deerford	D	Rare	---	---	0.5-1.5	Perched	Dec-Apr	High	Moderate.
Dx: Dexter	B	None	---	---	>6.0	---	---	Moderate	Moderate.
FA: Fausse	D	Frequent	Very long	Jan-Dec	+1.-1.5	Apparent	Jan-Dec	High	Low.
Fb, Fe, Fg: Feliciana	B	None	---	---	>6.0	---	---	Moderate	Moderate.
FH*:									
Feliciana	B	None	---	---	>6.0	---	---	Moderate	Moderate.
Natchez	B	None	---	---	>6.0	---	---	Low	Low.
Fk: Fluker	C	Rare	---	---	0.5-1.5	Perched	Dec-Apr	High	High.
Fr: Frost, ponded	D	Frequent	Very long	Jan-Dec	+2-0	Apparent	Jan-Dec	High	Moderate.

See footnote at end of table.

Table 15.--Soil and Water Features--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
Ke: Kenefick	B	None	---	---	>6.0	---	---	Moderate	High.
LA*:									
Latanier	D	Occasional	Brief to long.	Nov-Jul	1.0-3.0	Apparent	Dec-Apr	High	Low.
Moreland	D	Occasional	Brief to long.	Dec-Jun	0-1.5	Perched	Dec-Apr	High	Low.
Lo, Lr: Loring	C	None	---	---	2.0-3.0	Perched	Dec-Mar	Moderate	Moderate.
Lt, Ly: Lytle	B	None	---	---	>6.0	---	---	Moderate	Moderate.
MB*:									
Morganfield	B	Frequent	Brief	Jan-Apr	3.0-4.0	Apparent	Jan-Apr	Low	Low.
Bigbee	A	Frequent	Brief	Jan-Mar	3.5-6.0	Apparent	Jan-Mar	Low	Moderate.
Oa, Ob: Olivier	C	None	---	---	1.0-2.5	Perched	Dec-Apr	High	Moderate.
OG*:									
Ouachita	C	Frequent	Brief to long.	Dec-May	>6.0	---	---	Moderate	Moderate.
Ochlockonee	B	Frequent	Brief to long.	Dec-Apr	3.0-5.0	Perched	Dec-Apr	Low	High.
Guyton	D	Frequent	Brief to long.	Jan-Dec	0-1.5	Perched	Dec-May	High	High.
PA*:									
Pits	-	None	---	---	>6.0	---	---	---	---
Arents	C	None	---	---	>6.0	---	---	---	---
RA*: Riverwash	A	Frequent	Brief	Jan-Dec	0.5-6.0	Apparent	Nov-Apr	High	Low.
RC*:									
Robinsonville	B	Occasional	Brief to long.	Jan-Apr	4.0-6.0	Apparent	Jan-Apr	Low	Low.
Convent	C	Occasional	Brief to long.	Dec-Jun	1.5-4.0	Apparent	Dec-Apr	High	Low.
Rs: Ruston	B	None	---	---	>6.0	---	---	Moderate	Moderate.
Sa: Sharkey	D	Rare	---	---	0-2.0	Apparent	Dec-Apr	High	Moderate.
SH: Sharkey	D	Frequent	Brief to very long.	Dec-Jul	0-2.0	Apparent	Dec-Apr	High	Moderate.
SM: Smithdale	B	None	---	---	>6.0	---	---	Low	Moderate.

See footnote at end of table.

Table 15.--Soil and Water Features--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
Ta, Tg: Tangi	C	None	---	---	1.5-3.0	Perched	Dec-Apr	Moderate	Moderate.
To: Toula	C	None	---	---	1.5-3.0	Perched	Dec-Apr	Moderate	Moderate.
Ts*:									
Tunica	D	None	---	---	1.5-3.0	Apparent	Jan-Apr	High	Low.
Sharkey	D	None	---	Dec-Jul	0-2.0	Apparent	Dec-Apr	High	Moderate.
TU*:									
Tunica	D	Frequent	Brief to very long.	Jan-Apr	1.5-3.0	Apparent	Jan-Apr	High	Low.
Sharkey	D	Frequent	Brief to very long.	Dec-Jul	0-2.0	Apparent	Dec-Apr	High	Moderate.
UB*: Urban land	-	None	---	---	>2.0	---	---	---	---
We: Weyanoke	C	Rare	---	---	2.5-4.0	Apparent	Jan-Apr	Low	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 16.--Fertility Test Data for Selected Soils

(Analyses by the Soil Fertility Laboratory, Louisiana Agricultural Experiment Station. Dashes indicate data is not available.)

Soil name and sample number	Horizon	Depth	Organic matter content	pH 1:1 H_2O	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Cation-exchange capacity (effective)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity Na	Saturation: Effective cation-exchange capacity Al	Ca/Mg
		In	Pct		Ppm	Milliequivalents/100 grams of soil									Pct	Pct	Pct	
Bude silt loam:[1]																		
(S89LA-037-58)	A	0-5	0.63	4.8	15	0.7	0.3	0.1	0.1	1.6	0.6	13.8	15.0	3.4	8.0	0.7	47.1	2.3
	E	5-11	0.41	4.8	10	0.3	0.8	0.1	0.1	3.0	0.6	12.0	13.3	4.9	9.8	0.8	61.2	0.4
	Bw1	11-15	0.12	4.9	8	0.3	1.3	0.1	0.1	5.0	0.4	14.4	16.2	7.2	11.1	0.6	69.4	0.2
	Bw2	15-20	0.09	5.1	8	0.3	2.0	0.1	0.3	6.6	0.2	13.8	16.5	9.5	16.4	1.8	69.5	0.2
	E/Bx	20-24	0.08	5.3	9	0.4	3.0	0.2	0.6	7.0	0.4	15.6	19.8	11.6	21.2	3.0	60.3	0.1
	Btx1	24-27	0.40	5.4	10	0.5	3.9	0.2	0.8	7.8	0.0	16.2	21.6	13.2	25.0	3.7	59.1	0.1
	2Btx2	27-44	0.03	5.3	10	0.6	4.1	0.2	0.8	5.8	0.2	14.4	20.1	11.7	28.4	4.0	49.6	0.1
	2Btx3	44-60	0.42	6.0	8	1.7	4.0	0.1	0.9	4.4	0.6	10.2	16.9	11.7	39.6	5.3	37.6	0.4
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	41.6[2]	---	---	---
Calhoun silt loam:[1]																		
	Ap	0-7	1.30	4.9	56	3.4	1.2	0.2	0.1	0.6	0.4	13.2	18.1	5.9	27.1	0.6	10.2	2.8
(S89LA-037-50)	Eg1	7-13	0.51	5.1	123	3.1	0.9	0.1	0.2	0.6	0.4	12.0	16.3	5.3	26.4	1.2	11.3	3.4
	Eg2	13-20	0.42	5.0	108	3.6	1.3	0.1	0.3	1.6	0.2	11.9	17.2	7.1	30.8	1.7	22.5	2.8
	Eg/Btg	20-25	0.37	4.9	116	3.2	1.3	0.1	0.3	2.4	0.6	12.0	16.9	7.9	29.0	1.8	30.5	2.5
	Btg/Eg	25-31	0.30	4.8	106	3.8	1.8	0.2	0.5	4.2	0.6	11.4	17.7	11.1	35.6	2.8	37.8	2.1
	Btg1	31-41	0.28	5.1	25	3.3	2.1	0.2	0.6	4.8	0.2	16.2	22.4	11.2	27.7	2.7	42.9	1.6
	Btg2	41-52	0.24	4.7	209	4.6	3.2	0.3	1.0	5.4	0.2	17.4	26.5	14.7	34.3	3.8	36.7	1.4
	BCg	52-60	0.20	4.8	215	5.5	4.3	0.3	1.3	3.6	0.4	15.0	26.4	15.4	43.2	4.9	23.4	1.3
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	43.4[2]	---	---	---
Calhoun silt loam:[3]																		
	A	0-3	4.84	4.7	42	3.7	1.4	0.3	0.0	1.0	1.2	10.8	16.2	7.6	33.3	0.0	13.2	2.6
(S89LA-037-97)	Eg	3-26	0.70	4.8	13	1.7	0.8	0.1	0.1	2.4	2.0	7.8	10.5	7.1	25.7	1.0	33.8	2.1
	Btg/Eg	26-38	0.28	5.0	10	2.0	1.8	0.1	0.5	5.2	0.6	10.2	14.6	10.2	30.1	3.4	51.0	1.1
	Btg	38-60	0.24	4.8	13	3.2	3.4	0.2	1.3	5.8	1.2	10.8	18.9	15.1	42.9	6.9	38.4	0.9
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	66.7[2]	---	---	---
Cascilla silt loam:[1]																		
	A	0-6	3.48	4.5	42	1.9	0.7	0.2	0.1	4.4	0.6	23.7	26.6	7.9	10.9	0.4	55.7	2.7
(S91LA-037-100)	Bw1	6-19	1.21	4.6	61	0.7	0.3	0.1	0.1	5.2	0.8	19.2	20.4	7.2	5.9	0.5	72.2	2.3
	Bw2	19-40	0.70	4.6	51	0.5	0.5	0.1	0.1	5.4	0.4	17.8	19.0	7.0	6.3	0.5	77.1	1.0
	Bw3	40-50	0.14	5.2	29	0.1	0.7	0.1	0.2	5.6	0.8	17.0	18.1	7.5	6.1	1.1	74.7	0.1
	BC	50-60	0.18	4.9	42	0.3	0.5	0.1	0.1	4.0	0.8	14.8	15.8	5.8	6.3	0.6	69.0	0.6
Commerce silt loam:[1]																		
	Ap	0-5	1.42	5.4	210	8.2	2.7	0.5	0.0	0.0	0.4	11.1	22.5	11.8	50.7	0.0	0.0	3.0
(S91LA-125-7)	Bw1	5-21	0.62	6.9	188	12.3	3.9	0.3	0.1	0.0	0.6	9.6	26.2	17.2	63.4	0.4	0.0	3.2
	Bw2	21-31	0.35	7.6	176	11.2	3.5	0.3	0.1	0.0	0.6	12.6	27.7	15.7	54.5	0.4	0.0	3.2
	C	31-60	0.37	7.8	216	12.1	3.7	0.3	0.1	0.0	1.0	10.4	26.6	17.2	60.9	0.4	0.0	3.3

See footnotes at end of table.

Table 16.--Fertility Test Data for Selected Soils--Continued

Soil name and sample number	Horizon	Depth	Organic matter content	pH 1:1 H_2O	Extractable phosphorus	Exchangeable cations Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Cation-exchange capacity (effective)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity Na	Saturation: Effective cation-exchange capacity Al	Ca/Mg
		In	Pct		Ppm	Milliequivalents/100 grams of soil									Pct	Pct	Pct	
Convent silt loam:[1]	Ap1	0-4	2.89	7.0	610	11.3	2.9	1.1	0.1	0.0	0.6	10.4	25.8	16.0	59.7	0.4	0.0	3.9
(S91LA-125-9)	Ap2	4-9	0.79	7.4	307	8.8	3.0	0.9	0.0	0.0	0.4	11.8	24.8	13.1	51.8	0.0	0.0	2.9
	C1	9-19	0.51	7.8	218	9.5	3.6	0.6	0.1	0.0	0.2	11.7	25.5	14.0	54.1	0.4	0.0	2.6
	C2	19-32	0.44	8.1	201	10.6	4.2	0.3	0.2	0.0	0.2	10.7	26.0	15.5	58.8	0.8	0.0	2.5
	C3	32-60	0.35	8.1	212	9.6	4.1	0.3	0.3	0.0	0.2	9.6	23.9	14.5	59.8	1.3	0.0	2.3
Crevasse loamy sand:[1]	A	0-6	0.18	7.9	124	5.5	1.1	0.1	0.0	0.0	0.6	3.7	10.4	7.3	64.4	0.0	0.0	5.0
(S91LA-125-1)	C1	6-40	0.19	7.7	131	3.9	0.9	0.1	0.0	0.0	0.6	3.7	8.6	5.5	57.0	0.0	0.0	4.3
Deerford silt loam:[1]	Ap	0-6	0.98	5.5	70	3.9	1.0	0.1	0.1	0.0	0.1	4.8	9.9	5.2	51.5	1.0	0.0	3.9
(S89LA-037-90)	E	6-10	0.73	5.9	581	3.9	1.0	0.1	0.2	---	---	4.2	9.4	---	55.3	2.1	---	3.9
	Bt/E	10-16	0.85	6.0	590	5.9	4.5	0.2	1.5	---	---	6.0	18.1	---	66.9	8.3	---	1.3
	Btn1	16-24	0.60	5.9	572	4.9	5.1	0.3	1.9	---	---	5.9	18.1	---	67.4	10.5	---	1.0
	Btn2	24-34	0.46	6.0	513	4.7	5.1	0.2	2.1	---	---	5.8	17.9	---	67.6	11.7	---	0.9
	Btn3	34-60	0.35	6.6	470	4.4	4.0	0.2	2.7	---	---	4.8	16.1	---	70.2	16.8	---	1.1
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	74.5[2]	---	---	---
Deerford silt loam:[4]	A	0-5	1.78	7.0	34	12.8	0.7	0.2	0.0	0.0	0.2	8.3	22.0	13.9	62.3	0.0	0.0	18.3
(S89LA-037-54)	E	5-10	0.70	7.7	30	5.7	1.4	0.1	0.0	0.0	0.2	15.0	22.2	7.4	32.4	0.0	0.0	4.1
	Btn1	10-24	0.60	7.5	25	8.0	1.9	0.4	0.1	0.0	0.2	9.6	20.0	10.6	52.0	0.5	0.0	4.2
	Btn2	24-30	0.58	7.5	71	9.5	4.6	0.6	0.4	0.0	0.4	9.6	24.7	15.5	61.1	1.6	0.0	2.1
	Btn3	30-42	0.12	7.6	49	6.1	5.9	0.3	1.0	0.0	0.4	9.0	22.3	13.7	59.6	4.5	0.0	1.0
	BCn	42-60	0.10	7.6	40	4.5	4.8	0.2	1.6	0.0	0.4	8.4	19.5	11.5	56.9	8.2	0.0	0.9
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	52.4[2]	---	---	---
Dexter very fine sandy loam:[5]	Ap	0-4	1.06	5.7	249	3.5	0.7	0.5	0.0	0.0	0.6	4.8	9.5	5.3	49.5	0.0	0.0	5.0
(S89LA-037-5)	BA	4-6	0.72	6.2	179	4.1	0.9	0.4	0.0	0.0	0.6	4.7	10.1	6.0	53.5	0.0	0.0	4.6
	Bt1	6-15	0.30	5.1	99	3.7	1.5	0.4	0.0	0.6	0.6	9.0	14.6	6.8	38.4	0.0	8.8	2.5
	Bt2	15-28	0.23	5.0	125	3.5	2.1	0.4	0.0	1.6	0.4	8.9	14.9	8.0	40.3	0.0	20.0	1.7
	2BC1	28-37	0.23	5.0	142	2.5	2.9	0.3	0.1	2.0	0.4	9.6	15.4	8.2	37.7	0.6	24.4	0.9
	2BC2	37-47	0.11	5.0	130	1.5	1.9	0.2	0.0	2.0	0.6	7.8	11.4	6.2	31.6	0.0	32.3	0.8
	2C	47-60	0.01	5.1	107	0.9	1.2	0.1	0.0	1.0	0.4	7.2	9.4	3.6	23.4	0.0	27.8	0.7
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	38.5[2]	---	---	---

See footnotes at end of table.

Table 16.--Fertility Test Data for Selected Soils--Continued

Soil name and sample number	Horizon	Depth	Organic matter content	pH 1:1 H_2O	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Cation-exchange capacity (effective)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity Na	Saturation: Effective cation-exchange capacity Al	Ca/Mg
		In	Pct		Ppm	Milliequivalents/100 grams of soil									Pct	Pct	Pct	
Feliciana silt loam:[1]	Ap	0-5	1.82	4.1	379	1.1	0.3	0.2	0.0	1.0	0.8	7.8	9.4	3.4	17.0	0.0	29.4	3.7
(S89LA-037-46)	Bt1	5-15	0.46	5.2	111	3.0	0.8	0.2	0.0	0.0	1.2	5.4	9.4	5.2	42.6	0.0	0.0	3.8
	Bt2	15-29	0.19	5.5	235	6.2	3.0	0.4	0.1	0.0	0.2	12.0	21.7	9.9	44.7	0.5	0.0	2.1
	Bt3	29-46	0.25	5.6	221	6.3	3.1	0.4	0.1	0.2	0.4	11.9	21.8	10.5	45.4	0.5	1.9	2.0
	BC	46-65	0.11	5.3	174	5.5	3.0	0.3	0.1	0.8	0.4	13.2	22.1	10.1	40.3	0.5	7.9	1.8
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	51.9[2]	---	---	---
Feliciana silt loam:[6]	Ap	0-4	2.43	3.5	417	0.6	0.3	0.2	0.0	2.0	0.4	6.0	7.1	3.5	15.5	0.0	57.1	2.0
(S89LA-037-66)	Bt1	4-24	0.50	4.7	118	2.5	1.8	0.2	0.1	1.8	0.2	5.4	10.0	6.6	46.0	1.0	27.3	1.4
	Bt2	24-38	0.47	5.2	153	4.3	2.8	0.3	0.2	1.8	0.6	14.4	22.0	10.0	34.5	0.9	18.0	1.5
	Bt3	38-50	0.12	5.1	99	3.4	2.4	0.2	0.2	1.6	0.4	13.6	9.8	8.2	63.3	2.0	19.5	1.4
	BC	50-60	0.05	5.4	70	3.5	2.3	0.2	0.2	1.6	0.4	12.6	18.8	8.2	33.0	1.1	19.5	1.5
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	36.6[2]	---	---	---
Feliciana silt loam:[7]	A	0-1	5.58	4.5	178	3.0	2.0	0.9	0.1	0.0	0.4	10.8	16.8	6.4	35.7	0.6	0.0	1.5
(S89LA-037-70)	Bt1	1-22	0.96	4.6	97	0.9	1.1	0.2	0.0	3.0	0.4	4.8	7.0	5.6	31.4	0.0	53.6	0.8
	Bt2	22-41	0.46	4.7	79	0.7	2.5	0.2	0.1	5.6	0.2	7.8	11.3	9.3	31.0	0.9	60.2	0.3
	Bt3	41-56	0.20	4.8	70	0.4	2.2	0.2	0.1	4.6	1.0	7.7	10.6	8.5	27.4	0.9	54.1	0.2
	BC	56-60	0.14	4.5	59	0.2	1.0	0.1	0.0	1.8	0.4	3.0	4.3	3.5	30.2	0.0	54.4	0.2
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	17.4[2]	---	---	---
Fluker silt loam:[1]	Ap	0-6	1.87	4.5	50	1.0	0.2	0.1	0.1	2.0	0.6	8.5	9.9	4.0	14.1	1.0	50.0	5.0
(S89LA-037-62)	BE	6-12	0.16	5.3	48	0.6	0.8	0.1	0.1	3.0	0.6	12.6	14.2	5.2	11.3	0.7	57.7	0.8
	Bt1	12-20	0.19	5.6	32	0.0	1.0	0.1	0.5	4.4	0.6	14.4	16.0	6.6	10.2	3.1	66.3	0.0
	Bt2	20-25	0.14	5.4	47	0.2	1.2	0.1	0.9	5.8	0.2	8.4	10.8	8.4	22.2	8.3	69.0	0.2
	Bt/E	25-31	0.14	5.7	38	0.2	1.6	0.1	0.8	5.0	0.6	11.4	14.1	8.3	19.1	5.7	60.2	0.1
	2Btx1	31-37	0.10	5.3	49	0.2	2.4	0.2	1.0	6.8	0.2	9.6	13.4	10.8	28.4	7.5	63.0	0.1
	2Btx2	37-49	0.01	5.1	41	0.1	1.7	0.1	1.1	4.0	0.4	7.8	10.8	7.4	27.8	10.2	54.1	0.1
	2Btx3	49-60	0.07	4.9	27	0.1	1.3	0.0	1.0	2.2	0.6	8.4	10.8	5.2	22.2	9.3	42.3	0.1
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14.6[2]	---	---
Frost silt loam:[1]	A	0-4	2.96	4.9	287	3.3	0.8	0.5	0.0	0.4	1.4	22.9	27.5	6.4	16.7	0.0	6.2	4.1
(S91LA-125-11)	Eg	4-15	1.73	5.0	240	2.5	0.7	0.4	0.1	0.4	1.0	18.5	22.2	5.1	16.7	0.5	7.8	3.6
	Btg/Eg	15-21	0.83	5.0	178	2.3	0.7	0.3	0.0	0.6	0.4	16.3	19.6	4.3	16.8	0.0	14.0	3.3
	Btg1	21-34	0.43	5.1	105	1.7	0.5	0.2	0.1	0.0	0.8	17.8	20.3	3.3	12.3	0.5	0.0	3.4
	Btg2	34-58	0.72	5.0	209	2.3	0.8	0.3	0.1	0.6	1.2	18.5	22.0	5.3	15.9	0.5	11.3	2.9
	BCg	58-60	0.25	5.5	229	3.1	2.1	0.2	0.3	0.4	0.4	17.8	23.5	6.5	24.3	1.3	6.2	1.5
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See footnotes at end of table.

Table 16.--Fertility Test Data for Selected Soils--Continued

Soil name and sample number	Horizon	Depth	Organic matter content	pH 1:1 H_2O	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Cation-exchange capacity (effective)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity Na	Saturation: Effective cation-exchange capacity Al	Ca/Mg
		In	Pct		Ppm	Milliequivalents/100 grams of soil									Pct	Pct	Pct	
Guyton silt loam:[8]	A	0-3	1.19	4.5	63	1.4	0.6	0.1	0.1	1.6	0.8	5.4	7.6	4.6	28.9	1.3	34.8	2.3
(S89LA-037-94)	Eg	3-14	0.62	4.5	39	0.9	0.5	0.1	0.1	1.6	0.6	4.2	5.8	3.8	27.6	1.7	42.1	1.8
	Eg/Btg	14-20	0.61	4.5	34	0.9	0.4	0.1	0.1	1.2	1.2	4.1	5.6	3.9	26.8	1.8	30.8	2.3
	Btg/Eg	20-24	0.29	4.4	24	0.7	1.5	0.1	0.4	5.6	0.0	9.0	11.7	8.3	23.1	3.4	67.5	0.5
	Btg1	24-35	0.23	4.3	29	0.5	1.5	0.1	0.5	6.2	0.4	9.6	12.2	9.2	21.3	4.1	67.4	0.3
	Btg2	35-42	0.15	4.5	34	0.4	2.0	0.1	0.8	6.6	0.0	10.2	13.5	9.9	24.4	5.9	66.7	0.2
	BCg	42-67	0.16	4.6	50	0.3	2.3	0.1	0.9	6.0	0.6	10.8	14.4	10.2	24.2	6.3	58.8	0.1
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	28.4[2]	---	---	---
Kenefick fine sandy loam:[1]	Ap	0-4	1.46	6.2	169	4.3	0.6	0.4	0.0	---	---	6.0	11.3	---	46.9	0.0	---	7.2
(S89LA-037-20)	A/B	4-8	0.85	6.6	80	4.0	0.6	0.3	0.0	---	---	5.9	10.8	---	45.4	0.0	---	6.7
	Bt1	8-22	0.22	6.3	100	3.6	2.9	0.2	0.1	---	---	6.6	13.4	---	50.7	0.7	---	1.2
	Bt2	22-42	0.05	5.1	81	0.9	3.4	0.2	0.1	0.0	0.2	9.0	13.6	4.8	33.8	0.7	0.0	0.3
	BC	42-58	0.02	4.9	59	0.2	2.1	0.1	0.0	1.2	0.4	4.2	6.6	4.0	36.4	0.0	30.0	0.1
	C	58-70	0.01	5.0	51	0.3	0.8	0.1	0.0	0.8	0.2	1.8	3.0	2.2	40.0	0.0	36.4	0.4
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Loring silt loam:[1]	Ap	0-6	1.55	4.3	151	2.6	0.5	0.1	0.0	0.8	1.0	7.8	11.0	5.0	29.1	0.0	16.0	5.2
(S89LA-037-35)	BE	6-10	0.77	5.4	100	4.6	0.4	0.1	0.1	2.0	0.0	9.0	14.2	7.2	36.6	0.7	27.8	11.5
	Bt	10-23	0.53	6.2	88	6.3	1.7	0.2	0.1	1.4	2.2	6.0	14.3	11.9	58.0	0.7	11.8	3.7
	Btx1	23-28	0.25	5.0	23	2.8	3.2	0.2	0.0	2.6	0.0	6.0	12.2	8.8	50.8	0.0	29.5	0.9
	Btx2	28-39	0.30	5.0	22	2.0	3.1	0.2	0.1	2.6	1.0	6.6	12.0	9.0	45.0	0.8	28.9	0.6
	Btx3	39-51	0.22	5.1	17	1.1	2.4	0.1	0.1	3.0	1.2	7.8	11.5	7.9	32.2	0.9	38.0	0.5
	C	51-60	0.07	5.2	18	1.2	2.7	0.1	0.2	2.6	1.2	7.7	11.9	8.0	35.3	1.7	32.5	0.4
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Loring silt loam:[9]	Ap	0-6	1.98	4.4	79	1.8	0.9	0.2	0.1	1.0	0.4	6.0	9.0	4.4	33.3	1.1	22.7	2.0
(S89LA-037-86)	BE	6-11	0.70	4.6	55	1.3	0.9	0.2	0.1	3.4	0.2	5.9	8.4	6.1	29.8	1.2	55.7	1.4
	Bt	11-25	0.35	5.0	51	1.5	1.9	0.2	0.1	4.2	0.2	8.4	12.1	8.1	30.6	0.8	51.9	0.8
	Btx1	25-35	0.10	5.3	57	1.4	2.7	0.2	0.2	3.6	0.4	8.3	12.8	8.5	35.2	1.6	42.4	0.5
	Btx2	35-44	0.12	5.0	46	1.5	2.8	0.2	0.2	3.6	0.2	8.3	13.0	8.5	36.2	1.5	42.4	0.5
	Btx3	44-60	0.12	5.1	69	1.8	3.0	0.2	0.3	2.2	0.4	7.2	12.5	7.9	42.4	2.4	27.8	0.6
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See footnotes at end of table.

Table 16.--Fertility Test Data for Selected Soils--Continued

Soil name and sample number	Horizon	Depth	Organic matter content	pH 1:1 H_2O	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Cation-exchange capacity (effective)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity Na	Saturation: Effective cation-exchange capacity Al	Ca/Mg
		In	Pct		Ppm	Milliequivalents/100 grams of soil									Pct	Pct	Pct	
Lytle silt loam:[10] (S89LA-037-10)	A	0-6	2.30	3.9	106	0.4	0.2	0.1	0.0	2.2	0.4	9.6	10.3	3.3	6.8	0.0	66.7	2.0
	Bt1	6-16	0.49	4.9	63	2.0	2.1	0.2	0.1	3.8	0.2	12.0	16.4	8.4	26.8	0.6	45.2	1.0
	Bt2	16-24	0.03	5.0	57	0.7	2.8	0.2	0.1	4.4	0.4	12.6	16.4	8.6	23.2	0.6	51.2	0.3
	2B/E1	24-30	0.16	4.9	65	0.3	3.0	0.2	0.1	3.0	0.6	10.8	14.4	7.2	25.0	0.7	41.7	0.1
	2B/E2	30-36	0.13	4.9	54	0.3	2.5	0.2	0.1	0.8	0.2	10.2	13.3	4.1	23.3	0.8	19.5	0.1
	2B't1	36-42	0.01	4.9	50	0.2	2.2	0.2	0.1	2.0	0.4	9.0	11.7	5.1	23.1	0.9	39.2	0.1
	2B't2	42-60	0.19	4.8	34	0.3	2.1	0.2	0.1	2.0	0.6	7.2	9.9	5.3	27.3	1.0	37.7	0.1
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	65.7	---	---	---
Lytle silt loam:[11] (S89LA-037-16)	Ap	0-8	1.35	6.9	231	7.9	1.1	0.5	0.0	0.0	0.4	6.0	15.5	9.9	61.3	0.0	0.0	7.2
	Bt1	8-12	0.66	7.3	83	5.0	0.8	0.1	0.0	0.0	0.4	5.4	11.3	6.3	52.2	0.0	0.0	6.3
	Bt2	12-24	0.31	7.5	95	6.7	0.9	0.1	0.1	0.0	0.4	5.3	13.1	8.2	59.5	0.8	0.0	7.4
	2B/E	24-33	0.16	7.7	126	10.5	1.1	0.3	0.1	0.0	0.2	5.2	17.2	12.2	69.8	0.6	0.0	9.5
	2B't1	33-42	0.13	7.4	116	6.9	1.4	0.2	0.0	0.0	0.0	5.3	13.8	8.5	61.6	0.0	0.0	4.9
	2B't2	42-60	0.14	7.2	100	4.8	1.9	0.1	0.0	0.0	0.0	4.2	11.0	6.8	61.8	0.0	0.0	2.5
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Morganfield silt loam:[1] (S91LA-037-18)	A	0-4	2.35	6.3	71	3.1	1.2	0.1	0.0	0.0	0.4	4.4	8.8	4.8	50.0	0.0	0.0	2.6
	C1	4-26	0.87	5.8	52	8.0	2.7	0.2	0.1	0.0	0.4	4.4	15.4	11.4	71.4	0.6	0.0	3.0
	C2	26-50	0.37	5.8	53	4.0	1.8	0.1	0.1	0.0	0.2	3.7	9.7	6.2	61.9	1.0	0.0	2.2
	C3	50-60	0.19	5.9	55	3.2	1.2	0.1	0.0	0.0	0.4	3.7	8.2	4.9	54.7	0.0	0.0	2.7
Natchez silt loam:[1] (S91LA-125-22)	A	0-2	2.42	5.7	62	7.3	3.3	0.3	0.1	0.0	1.0	11.1	22.1	12.0	49.8	0.5	0.0	2.2
	E	2-5	0.63	4.7	114	3.8	3.9	0.3	0.1	0.0	0.8	12.6	20.7	8.9	39.1	0.5	0.0	1.0
	Bw1	5-11	0.24	4.9	156	4.8	4.2	0.3	0.1	0.0	0.8	11.8	21.2	10.2	44.3	0.5	0.0	1.1
	Bw2	11-41	0.19	5.1	196	5.6	4.2	0.3	0.1	0.0	1.0	8.1	18.3	11.2	55.7	0.5	0.0	1.3
	C	41-60	0.16	7.8	200	20.9	3.3	0.2	0.1	0.0	1.0	4.4	28.9	25.5	84.8	0.3	0.0	6.3
Ochlockonee fine sandy loam:[1] (S89LA-037-34)	A	0-6	0.78	4.2	60	1.2	0.4	0.1	0.0	1.0	0.8	4.2	5.9	3.5	28.8	0.0	28.6	3.0
	C1	6-26	0.87	4.0	67	0.5	0.2	0.1	0.0	3.0	0.2	6.0	6.8	4.0	11.8	0.0	75.0	2.5
	C2	26-42	0.31	4.6	19	0.5	0.3	0.1	0.0	3.0	0.6	4.8	5.7	4.5	15.8	0.0	66.7	1.7
	C3	42-60	0.26	4.4	75	0.5	0.3	0.1	0.0	2.8	0.4	5.9	6.8	4.1	13.2	0.0	68.3	1.7
Olivier silt loam:[1] (S89LA-037-39)	Ap	0-7	1.69	4.7	96	3.0	1.2	0.2	0.2	0.8	0.4	6.0	10.6	5.8	43.4	1.9	13.8	2.5
	E	7-12	0.67	5.2	66	3.0	1.3	0.1	0.2	1.0	0.8	6.6	11.2	6.4	41.1	1.8	15.6	2.3
	Bt1	12-19	0.62	5.2	77	2.5	2.4	0.2	0.3	1.2	0.2	8.4	13.8	6.8	39.1	2.2	17.6	1.0
	Bt2	19-26	0.30	5.4	17	1.6	2.7	0.2	0.3	4.2	0.0	9.0	13.8	9.0	34.8	2.2	46.7	0.6
	Btx1	26-32	0.11	5.1	94	1.3	3.1	0.2	0.3	3.4	1.0	10.8	15.7	9.3	31.2	1.9	36.6	0.4
	Btx2	32-60	0.15	5.1	14	1.3	3.4	0.2	0.3	3.8	0.6	8.9	14.1	9.6	36.9	2.1	39.6	0.4
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See footnotes at end of table.

Table 16.--Fertility Test Data for Selected Soils--Continued

Soil name and sample number	Horizon	Depth	Organic matter content	pH 1:1 H_2O	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Cation-exchange capacity (effective)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity Na	Saturation: Effective cation-exchange capacity Al	Ca/Mg
		In	Pct		Ppm	Milliequivalents/100 grams of soil									Pct	Pct	Pct	
Olivier silt loam:[12]																		
(S89LA-037-78)	A	0-5	1.56	5.1	75	1.7	0.8	0.2	0.1	0.2	0.4	3.6	6.4	3.4	43.8	1.6	5.9	2.1
	E	5-10	0.68	5.2	47	1.4	0.9	0.1	0.1	0.8	0.2	3.5	6.0	3.5	41.7	1.7	22.9	1.6
	Bt1	10-18	0.47	5.2	65	2.7	2.9	0.2	0.1	1.8	0.2	2.9	8.8	7.9	67.0	1.1	22.8	0.9
	Bt2	18-24	0.29	5.3	63	3.2	3.6	0.3	0.1	2.0	0.4	3.0	10.2	9.6	70.6	1.0	20.8	0.9
	Btx1	24-31	0.30	5.3	88	3.1	3.7	0.4	0.1	2.2	0.2	4.8	12.1	9.7	60.3	0.8	22.7	0.8
	Btx2	31-60	0.23	5.3	84	2.6	3.3	0.3	0.1	0.8	0.2	3.6	9.9	7.3	63.6	1.0	11.0	0.8
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Ouachita silt loam:[1]																		
(S89LA-037-31)	A	0-7	3.65	4.0	94	1.0	0.7	0.3	0.0	2.0	0.4	12.6	14.6	4.4	13.7	0.0	45.5	1.4
	Bw1	7-15	1.04	4.2	71	0.2	0.2	0.1	0.0	3.4	0.6	9.0	9.5	4.5	5.3	0.0	75.6	1.0
	Bw2	15-24	0.68	4.7	31	0.1	0.2	0.1	0.0	4.0	1.0	9.6	10.0	5.4	4.0	0.0	74.1	0.5
	Bw3	24-40	0.58	4.7	37	0.1	0.3	0.1	0.0	4.0	0.6	9.4	9.9	5.1	5.1	0.0	78.4	0.3
	BC	40-48	0.46	4.6	89	0.2	0.6	0.1	0.1	4.6	0.4	10.8	11.8	6.0	8.5	0.8	76.7	0.3
	2C	48-60	0.41	4.6	81	0.2	0.6	0.1	0.1	3.6	1.4	10.2	11.2	6.0	8.9	0.9	60.0	0.3
Robinsonville fine sandy loam:[1]																		
(S91LA-125-3)	Ap	0-7	0.65	7.7	161	4.8	1.9	0.2	0.0	0.0	0.6	5.2	12.1	7.5	57.0	0.0	0.0	2.5
	C1	7-17	0.57	7.9	157	5.5	1.9	0.2	0.0	0.0	0.4	5.2	12.8	8.0	59.4	0.0	0.0	2.9
	C2	17-24	0.56	7.9	161	5.2	1.5	0.1	0.0	0.0	0.6	5.9	12.7	7.4	53.5	0.0	0.0	3.5
	C3	24-40	0.24	8.1	166	6.0	1.7	0.2	0.0	0.0	0.6	6.7	14.6	8.5	54.1	0.0	0.0	3.5
	C4	40-45	0.29	8.1	203	6.2	1.8	0.2	0.0	0.0	0.4	5.9	14.1	8.6	58.2	0.0	0.0	3.4
	C5	45-50	0.01	8.1	141	3.9	1.2	0.1	0.0	0.0	0.6	5.9	11.1	5.8	46.8	0.0	0.0	3.3
	C6	50-60	0.19	8.2	159	6.2	1.9	0.2	0.0	0.0	0.2	5.9	14.2	8.5	58.5	0.0	0.0	3.3
Ruston sandy loam:[1]																		
(S89LA-037-28)	A	0-2	6.08	4.0	192	6.1	2.2	0.6	0.1	1.0	0.2	9.8	18.8	10.2	47.9	0.5	9.8	2.8
	E	2-4	1.45	4.1	46	1.1	0.6	0.2	0.0	1.4	0.0	1.8	3.7	3.3	51.4	0.0	42.4	1.8
	Bt1	4-24	0.29	4.6	46	0.8	0.9	0.2	0.0	3.8	0.4	6.6	8.5	6.1	22.4	0.0	62.3	0.9
	Bt2	24-35	0.03	4.5	44	0.2	1.2	0.1	0.2	3.4	0.8	5.4	7.1	5.9	23.9	2.8	57.6	0.2
	Bt/E	35-45	0.04	4.6	20	0.2	1.1	0.1	0.1	3.0	0.2	8.4	9.9	4.7	15.2	1.0	63.8	0.2
	B't	45-60	0.12	4.6	39	0.4	1.3	0.1	0.1	2.2	0.8	4.8	6.7	4.9	28.4	1.5	44.9	0.3
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Sharkey clay:[13]																		
(S91LA-125-5)	Ap	0-6	3.81	5.9	266	16.4	5.7	0.8	0.1	0.0	0.6	14.8	37.8	23.6	60.8	0.3	0.0	2.9
	A,Bg1	6-19	1.87	6.7	211	25.7	8.6	0.9	0.3	0.0	0.4	8.1	43.6	35.9	81.4	0.7	0.0	3.0
	Bg2	19-27	1.09	6.9	162	30.1	10.3	0.8	0.5	0.0	0.4	13.3	55.0	42.1	75.8	0.9	0.0	2.9
	Bssg1	27-42	0.86	7.4	207	30.8	11.2	0.9	0.6	0.0	0.6	11.1	54.6	43.9	79.7	1.1	0.0	2.8
	Bssg2	42-60	0.72	7.8	301	36.8	11.3	1.0	0.6	0.0	0.6	10.4	60.1	50.3	82.7	1.0	0.0	3.3

See footnotes at end of table.

Table 16.--Fertility Test Data for Selected Soils--Continued

Soil name and sample number	Horizon	Depth	Organic matter content	pH 1:1 H_2O	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Cation-exchange capacity (effective)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity Na	Saturation: Effective cation-exchange capacity Al	Ca/Mg
		In	Pct		Ppm	Milliequivalents/100 grams of soil									Pct	Pct	Pct	
Smithdale sandy loam:[1]	A	0-2	1.99	4.6	64	1.1	0.6	0.2	0.0	1.0	0.4	6.0	7.9	3.3	24.1	0.0	30.3	1.8
(S89LA-037-21)	E	2-8	0.93	4.9	29	0.7	0.4	0.1	0.0	1.2	0.2	5.9	7.1	2.6	16.9	0.0	46.2	1.8
	Bt1	8-15	0.62	4.9	62	1.3	1.6	0.1	0.0	1.2	0.6	5.9	8.9	4.8	33.7	0.0	25.0	0.8
	Bt2	15-22	0.13	5.0	41	0.2	0.9	0.1	0.0	3.0	0.4	4.8	6.0	4.6	20.0	0.0	65.2	0.2
	Bt3	22-44	0.01	5.0	41	0.2	0.9	0.1	0.0	2.0	0.8	4.2	5.4	4.0	22.2	0.0	50.0	0.2
	Bt4	44-68	0.03	4.9	21	0.2	0.7	0.1	0.0	2.2	0.8	3.0	4.0	4.0	25.0	0.0	55.0	0.3
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Tangi silt loam:[14]	Ap	0-4	2.29	4.5	35	0.8	0.3	0.1	0.1	1.4	0.6	4.2	5.5	3.3	23.6	1.8	42.4	2.7
(S89LA-037-74)	Bt1	4-11	0.73	5.0	31	1.1	0.7	0.1	0.0	1.6	0.4	1.8	3.7	3.9	51.4	0.0	41.0	1.6
	Bt2	11-19	0.65	5.2	58	3.5	1.8	0.2	0.1	1.8	0.2	4.8	10.4	7.6	53.8	1.0	23.7	1.9
	2Btx	19-37	0.05	5.1	28	0.2	1.0	0.1	0.0	3.6	0.2	4.7	6.0	5.1	21.7	0.0	70.6	0.2
	2B't	37-60	0.20	5.0	33	0.6	1.2	0.1	0.0	3.0	0.4	4.2	6.1	5.3	31.1	0.0	56.6	0.5
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Tangi silt loam:[15]	Ap	0-4	2.01	4.5	194	1.7	1.3	1.0	0.0	0.0	0.4	9.6	13.6	4.4	29.4	0.0	0.0	1.3
(S89LA-037-3)	Bt1	4-10	0.94	5.0	135	2.5	1.6	1.3	0.0	0.4	0.6	9.5	14.9	6.4	36.2	0.0	6.3	1.6
	Bt2	10-19	0.40	4.9	229	3.1	2.1	1.3	0.1	1.8	0.4	12.0	18.6	8.8	35.5	0.5	20.5	1.5
	2Btx1	19-34	0.19	4.5	85	0.6	0.6	0.4	0.0	2.4	0.4	8.4	10.0	4.4	16.0	0.0	54.5	1.0
	2Btx2	34-52	0.15	4.2	59	0.8	1.0	0.2	0.0	3.8	0.2	9.6	11.6	6.0	17.2	0.0	63.3	0.8
	2Btx3	52-60	0.01	4.1	54	1.0	0.9	0.1	0.2	5.4	0.0	9.5	11.7	7.6	18.8	1.7	71.1	1.1
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Toula silt loam:[16]	A	0-4	2.09	4.6	57	0.6	0.3	0.1	0.0	1.8	0.2	5.4	6.4	3.0	15.6	0.0	60.0	2.0
(S89LA-037-82)	BE	4-11	0.63	4.7	40	0.5	1.0	0.1	0.1	2.4	0.4	4.8	6.5	4.5	26.2	1.5	53.3	0.5
	Bt1	11-24	0.31	5.2	44	0.4	1.3	0.1	0.2	2.2	0.4	4.7	6.7	4.6	29.9	3.0	47.8	0.3
	Bt2	24-32	0.11	5.2	65	0.6	3.8	0.2	1.0	5.0	1.0	4.8	10.4	11.6	53.8	9.6	43.1	0.2
	Btx1	32-42	0.03	5.2	69	0.9	5.0	0.2	1.3	2.6	1.4	4.7	12.1	11.4	61.2	10.7	22.8	0.2
	Btx2	42-60	0.05	5.1	73	1.6	5.2	0.1	1.7	1.0	1.6	4.8	13.4	11.2	64.2	12.7	8.9	0.3
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Tunica clay:[1]																		
(S91LA-037-82)	Ap	0-11	3.04	5.3	222	19.6	7.1	0.7	0.2	0.0	0.8	16.3	43.9	28.4	62.9	0.5	0.0	2.8
	Bg1	11-23	1.52	6.0	221	22.7	9.0	0.8	0.3	0.0	0.6	10.4	43.2	33.4	75.9	0.7	0.0	2.5
	Bg2	23-33	1.34	6.2	227	23.2	10.2	0.7	0.3	0.0	0.4	11.8	46.2	34.8	74.5	0.6	0.0	2.3
	2Cg	33-60	0.25	7.0	131	11.3	4.7	0.3	0.3	0.0	0.2	4.4	21.0	16.8	79.0	1.4	0.0	2.4

See footnotes at end of table.

Table 16.--Fertility Test Data for Selected Soils--Continued

[1] This is the typical pedon for the series in East and West Feliciana Parishes. For a description of the soil, see the section "Detailed Soil Map Units."

[2] This is the base saturation of the soil at the depth critical for classifying the soil at the order level.

[3] This Calhoun pedon is about 6.75 miles southwest of McManus; 850 feet south and 1,225 feet east of the northwest corner of Spanish Land Grant sec. 87, T. 4 S., R. 1 W.

[4] This Deerford pedon is about 5.5 miles northeast of Zachary; 1,350 feet south and 275 feet west of the northeast corner of sec. 11, T. 4 S., R. 1 E. This pedon classifies as a Glossaqualfs rather than a Natraqualfs.

[5] This Dexter pedon is on the Idlewild Experiment Station, 4,000 feet northeast of headquarters, 55 feet east of turn row; Spanish Land Grant sec. 44, T. 3 S., R. 2 E.

[6] This Feliciana pedon is about 375 feet north of Highway 964, 75 feet east of field road; Spanish Land Grant sec. 59, T. 3 S., R. 2 W.

[7] This Feliciana pedon is about 580 feet south of Highway 964, 450 feet northeast of the curve in Highway 61; Spanish Land Grant sec. 59, T. 3 S., R. 2 W.

[8] This Guyton pedon is about 2.1 miles northwest of Grangeville, 6,000 feet west of Amite River, 120 feet south of dirt road; Spanish Land Grant sec. 56, T. 3 S., R. 3 E.

[9] This Loring pedon is about 4 miles southwest of Ethel, 0.5 mile northwest of Highway 955, 120 feet northwest of a gravel road, 150 feet west of drainageway channel; Spanish Land Grant sec. 101, T. 3 S., R. 1 W.

[10] This Lytle pedon is about 2 miles southwest of Felixville, 5 miles north on a gravel road from a pipeline corridor, 210 feet west of a gravel road; Spanish Land Grant sec. 60, T. 2 S., R. 3 E.

[11] This Lytle pedon is on the Idlewild Experiment Station, 1,650 feet south of intersection of parish roads, 100 feet east of the north-south road; Spanish Land Grant sec. 46, T. 3 S., R. 2 E. This pedon is an Alfisols rather than an Ultisols.

[12] This Olivier pedon is about 7.5 miles northwest of Slaughter, 0.6 mile northeast on parish road from its intersection with Highway 61; Spanish Land Grant sec. 75, T. 4 S., R. 2 W.

[13] This is the typical pedon for the Sharkey series. For a description of the soil, see the sections "Detailed Soil Map Units" and "Soil Series and Their Morphology."

[14] This Tangi pedon is about 1,575 feet east-northeast and 100 feet north of the southwest corner of Spanish Land Grant sec. 46, T. 3 S., R. 2 E.; USGS Bluff Creek, Louisiana, topographic quadrangle, latitude 30 degrees 48 minutes 36 seconds N., longitude 90 degrees 57 minutes 34 seconds W., NAD 84.

[15] This Tangi pedon has the same location as the Tangi typifying pedon for the Tangi Series. For a description of the soil, see the sections "Detailed Soil Map Units" and "Soil Series and Their Morphology."

[16] This Toula pedon is about 800 feet east of the channel of Steep Bayou, 1,200 feet north of parish line, 100 feet north of parish road; Spanish Land Grant sec. 61, T. 4 S., R. 3 E. This pedon is an Alfisols rather than an Ultisols.

Table 17.--Physical Test Data for Selected Soils

(The symbol TR means trace. Dashes indicate that analyses were not made)

Soil name and sample number	Horizon	Depth	Particle-size distribution: Sand: Very coarse (2-1 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.10 mm)	Very fine (0.10-0.05 mm)	Total (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Fine clay (<0.002 mm)	Water content: 1/3 bar	15 bar	Water retention	Bulk density: 1/3 bar	Oven dry	COLE
		In	Pct									Pct (wt)			g/cm³	g/cm³	
Dexter silt loam:[1] (S89LA-037-093)	Ap1	0-5	0.2	1.8	12.9	9.2	3.0	27.1	65.4	7.5	6.3	23.0	5.3	0.26	1.47	1.57	0.022
	Ap2	5-9	0.3	2.0	13.4	8.0	3.7	27.4	63.1	9.5	5.9	23.8	4.5	0.30	1.54	1.65	0.023
	Bt1	9-16	0.1	0.6	5.8	4.2	1.4	12.1	60.3	27.6	19.7	17.5	11.8	0.09	1.52	1.54	0.004
	Bt2	16-26	TR	0.5	5.4	4.6	1.3	11.8	56.0	32.2	22.1	18.3	13.5	0.08	1.58	1.62	0.008
	Bt3	26-31	TR	1.0	9.3	8.4	1.9	20.6	52.2	27.2	18.1	21.2	11.1	0.17	1.66	1.75	0.018
	2Bt4	31-41	0.1	1.4	15.9	14.0	3.0	34.4	45.1	20.5	13.7	15.8	8.5	0.13	1.79	1.84	0.009
	2Bt5	41-52	0.1	1.8	24.3	23.1	4.5	53.8	33.1	13.1	8.6	13.8	5.2	0.15	1.77	1.81	0.007
	2Bt6	52-60	0.1	1.7	26.6	28.3	5.4	62.1	27.6	10.3	6.5	11.2	4.0	0.13	1.83	1.83	---
	2BC	60-67	0.1	1.9	29.6	33.8	6.6	72.0	19.8	8.2	4.7	8.9	2.9	0.15	1.69	1.71	---
	2C	67-80	TR	1.3	33.7	36.4	7.8	79.2	15.0	5.8	3.2	---	1.9	0.13	---	---	0.004
Lytle silt loam:[2] (S90LA-003-002)	Ap	0-6	0.1	0.7	9.3	13.1	4.9	28.1	66.1	5.8	3.9	19.2	3.7	0.22	1.44	1.44	0.002
	E	6-11	---	0.5	8.7	13.3	2.6	25.1	68.5	6.4	3.8	15.9	3.0	0.20	1.54	1.55	0.034
	Bt1	11-19	---	0.2	4.8	8.0	1.3	14.3	55.1	30.6	22.3	21.8	12.5	0.14	1.52	1.68	0.018
	Bt2	19-28	0.1	0.3	6.1	12.0	1.2	19.7	51.4	28.9	21.0	21.1	12.2	0.14	1.60	1.69	0.002
	Bt3	28-38	0.2	0.6	12.7	26.9	3.1	43.5	36.4	20.1	13.6	15.7	8.5	0.13	1.75	1.76	0.009
	2Bt/E	38-46	0.1	0.5	17.0	39.5	2.8	59.9	21.3	18.8	12.4	12.9	7.3	0.10	1.83	1.88	0.009
	2B't1	46-56	0.2	0.3	20.5	39.7	2.1	62.8	12.4	24.8	15.8	13.7	9.5	0.08	1.81	1.86	0.011
	2B't2	56-67	TR	0.7	23.3	37.5	2.3	63.8	10.2	26.0	16.3	14.2	10.2	0.07	1.80	1.86	0.007
	2B't3	67-81	TR	0.5	28.7	33.2	2.6	65.0	9.1	25.9	16.3	---	10.4	---	1.77	1.81	---
Lytle silt loam:[3] (S89LA-037-091)	Ap	0-8	TR	0.3	6.4	8.9	2.4	18.0	71.1	10.9	8.3	22.0	20.6	0.02	1.62	1.69	0.014
	E	8-16	0.1	0.2	5.8	7.9	1.9	15.9	72.6	11.5	7.6	25.8	5.7	0.31	1.53	1.64	0.023
	Bt1	16-23	TR	0.1	5.1	6.5	1.7	13.4	60.9	25.7	19.0	17.4	13.0	0.08	1.72	1.78	0.012
	Bt2	23-33	TR	0.2	7.4	8.6	3.1	19.3	51.7	29.0	20.8	19.6	14.3	0.09	1.69	1.77	0.016
	2Bt/E	33-43	0.1	0.6	14.3	16.1	4.7	35.8	37.5	26.7	19.4	23.0	12.2	0.15	1.43	1.53	0.023
	2B't1	43-52	TR	0.4	14.2	17.9	5.1	37.6	23.2	39.2	30.1	23.9	16.3	0.12	1.53	1.66	0.028
	2B't2	52-64	0.1	0.4	14.1	18.8	5.0	38.4	19.6	42.0	29.9	21.1	17.2	0.06	1.51	1.55	0.009
	2B't3	64-74	TR	0.3	5.6	7.8	3.5	17.2	29.9	52.9	41.4	21.1	21.1	---	1.51	1.53	0.004
	2B't4	74-85	TR	0.3	7.7	10.4	6.1	24.5	27.8	47.7	37.8	15.8	18.9	---	1.79	1.81	0.004
Tangi silt loam:[1] (S89LA-037-092)	Ap	0-5	0.2	1.2	9.6	8.5	2.7	22.2	63.4	14.4	12.0	17.7	8.8	0.15	1.73	1.79	0.011
	Bt1	5-12	0.1	0.3	3.4	3.3	1.5	8.6	61.8	29.6	22.4	19.8	14.6	0.09	1.64	1.70	0.012
	Bt2	12-20	0.1	0.9	6.5	5.9	2.7	16.1	60.7	23.2	17.4	14.7	11.5	0.06	1.80	1.83	0.006
	2Btx1	20-24	0.5	2.1	12.6	10.9	4.4	30.5	54.3	15.2	11.0	23.4	7.4	0.23	1.45	1.57	0.027
	2Btx2	24-32	0.6	1.9	16.3	14.3	3.7	36.8	45.5	17.7	14.7	23.0	7.9	0.23	1.51	1.59	0.017
	2Btx3	32-41	0.3	1.9	17.7	14.9	4.1	38.9	38.2	22.9	18.4	21.9	9.6	0.20	1.60	1.68	0.016
	2Btx4	41-58	0.3	2.4	18.9	15.0	3.7	40.3	22.0	37.7	27.8	19.0	15.1	0.06	1.55	1.61	0.013
	2Btx5	58-63	0.1	2.6	20.0	14.9	3.4	41.0	16.6	42.4	32.3	21.5	16.5	0.08	1.61	1.69	0.016
	2B't	63-80	0.1	1.7	20.6	26.4	2.8	51.6	12.8	35.6	25.3	17.4	14.4	0.05	1.69	1.75	0.012

[1] This is the typical pedon for the series in East and West Feliciana Parishes. For a description of the soil, see the section "Detailed Soil Map Units."

[2] This is the pedon for the series. For a description of the soil, see the section "Detailed Soil Map Units" or "Soil Series and Their Morphology."

[3] This Lytle pedon is about 2,400 feet southeast from the intersection of parish roads, 120 feet north of road, on the Idlewild Experiment Station; Spanish Land Grant sec. 46, T. 3 S., R. 2 E.

Table 18.--Chemical Test Data for Selected Soils

(The symbol TR means trace. Dashes indicate analyses not made.)

Soil name and sample number	Horizon	Depth	Extractable cations: Ca	Extractable cations: Mg	Extractable cations: K	Extractable cations: Na	Extractable acidity	Cation-exchange capacity NH$_4$OAc	Base saturation	Organic carbon	pH 1:1 H_2O	pH 1:2 $CaCl_2$	Extractable iron	Extractable aluminum
		In	Meq/100g				Pct	Pct		Pct			Pct	Meq/100g
Dexter silt loam:[1]														
(S89LA-037-093)	Ap1	0-5	4.7	1.0	0.3	TR	3.0	6.4	67	1.12	6.0	5.8	0.6	---
	Ap2	5-9	3.1	0.7	0.2	TR	2.2	4.5	65	0.52	6.4	6.0	---	---
	Bt1	9-16	4.4	3.4	0.2	0.1	4.8	9.9	63	0.28	6.0	5.5	---	---
	Bt2	16-26	2.7	4.2	0.3	0.1	8.3	11.8	47	0.21	5.1	4.4	---	1.1
	Bt3	26-31	2.2	4.1	0.2	0.1	6.7	9.7	50	0.13	5.2	4.4	---	0.8
	2Bt4	31-41	0.9	2.7	0.2	0.1	5.9	7.4	40	0.09	4.9	4.3	---	0.5
	2Bt5	41-52	0.2	1.3	TR	0.1	3.4	4.0	32	0.05	5.3	4.2	---	0.1
	2Bt6	52-60	0.1	0.9	TR	0.1	2.4	3.1	31	0.04	5.0	4.2	---	0.6
	2BC	60-67	---	0.6	---	TR	2.4	2.1	20	0.03	4.9	4.2	---	0.2
	2C	67-80	---	0.4	---	0.1	0.8	1.2	38	0.02	5.0	4.3	---	TR
Lytle silt loam:[2]														
(S90LA-003-002)	Ap	0-6	0.6	0.2	0.1	TR	8.0	6.3	10	1.55	4.5	4.2	0.4	0.1
	E	6-11	0.4	0.2	0.1	---	3.6	3.4	16	0.46	5.0	4.4	0.4	0.1
	Bt1	11-19	0.5	2.2	0.2	---	10.6	10.5	21	0.25	5.1	4.2	2.0	0.2
	Bt2	19-28	0.2	2.7	0.2	TR	9.5	10.1	25	0.09	5.2	4.2	1.3	0.2
	Bt3	28-38	0.2	1.7	0.1	0.1	5.9	6.4	26	0.03	5.3	4.3	1.5	0.2
	2Bt/E	38-46	0.1	1.2	0.1	---	4.3	4.9	25	0.03	5.2	4.4	1.3	0.1
	2B't1	46-56	0.1	1.5	0.1	TR	4.2	5.0	29	0.04	5.4	4.4	1.7	0.2
	2B't2	56-67	0.1	1.5	0.1	---	4.5	5.1	27	0.02	5.4	4.4	1.8	0.1
	2B't3	67-81	0.1	1.6	0.1	TR	4.2	5.1	30	0.02	5.5	4.4	1.8	0.1
Lytle silt loam:[3]														
(S89LA-037-091)	Ap	0-8	11.8	1.2	0.2	0.1	2.0	7.3	87	0.97	7.3	7.0	1.0	0.1
	E	8-16	5.0	0.8	0.1	0.1	2.0	5.2	75	0.35	7.3	6.8	1.0	0.1
	Bt1	16-23	8.5	0.8	0.2	0.1	2.7	8.6	78	0.27	7.2	7.0	2.0	0.2
	Bt2	23-33	9.2	0.9	0.2	0.1	2.7	9.4	79	0.13	7.8	7.1	2.6	0.2
	2Bt/E	33-43	5.2	1.4	0.1	TR	2.7	6.6	71	0.09	7.0	6.8	2.6	0.2
	2B't1	43-52	2.4	3.2	TR	TR	4.0	6.6	58	0.09	5.6	5.2	3.3	0.3
	2B't2	52-64	0.9	3.7	0.1	TR	5.4	7.4	47	0.08	5.2	4.4	3.2	0.3
	2B't3	64-74	0.9	4.2	0.1	0.1	6.9	8.4	43	0.09	4.9	4.4	3.9	0.3
	2B't4	74-84	0.5	3.4	0.1	0.1	7.0	8.0	37	0.09	4.7	4.3	3.4	0.3
Tangi silt loam:[1]														
(S89LA-037-092)	Ap	0-5	3.7	1.8	0.8	0.1	7.1	9.2	47	1.46	5.2	4.6	1.2	0.2
	Bt1	5-12	6.0	2.7	1.2	0.1	8.3	11.8	55	0.38	6.4	5.6	2.2	0.3
	Bt2	12-20	2.5	1.5	0.2	0.1	9.4	9.2	31	0.17	4.9	4.2	2.2	0.3
	2Btx1	20-24	0.9	0.9	0.1	0.1	6.6	5.8	23	0.10	4.7	4.1	1.8	0.3
	2Btx2	24-32	0.4	0.9	0.1	0.1	7.1	5.5	17	0.05	4.6	4.0	1.5	0.2
	2Btx3	32-41	0.4	0.9	TR	0.1	25.4	6.2	5	0.04	4.2	3.9	2.0	0.3
	2Btx4	41-58	0.6	0.9	TR	0.1	8.8	7.5	15	0.05	4.2	3.9	3.2	0.3
	2Btx5	58-63	0.9	0.8	TR	0.2	9.3	8.0	17	0.05	4.2	3.9	3.7	0.3
	2B't	63-80	1.1	0.6	TR	0.1	6.6	5.7	21	0.03	4.2	4.0	2.5	0.2

[1] This is the typical pedon for the series in East and West Feliciana Parishes. For a description of the soil, see the section "Detailed Soil Map Units."

[2] This is the pedon for the series. For a description of the soil, see the section "Detailed Soil Map Units" or "Soil Series and Their Morphology."

[3] This Lytle pedon is about 2,400 feet southeast from the intersection of parish roads, 120 feet north of road, on Idlewild Experiment Station; Spanish Land Grant sec. 46, T. 3 S., R. 2 E.

Table 19.--Classification of the Soils

(An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series)

Soil name	Family or higher taxonomic class
Arat	Fine-silty, siliceous, nonacid, thermic Typic Hydraquents
Arents.	
Bigbee	Thermic, coated Typic Quartzipsamments
Bude	Fine-silty, mixed, thermic Glossaquic Fragiudalfs
Calhoun	Fine-silty, mixed, thermic Typic Glossaqualfs
Cascilla	Fine-silty, mixed, thermic Fluventic Dystrochrepts
Commerce	Fine-silty, mixed, nonacid, thermic Aeric Fluvaquents
Convent	Coarse-silty, mixed, nonacid, thermic Aeric Fluvaquents
Crevasse	Mixed, thermic Typic Udipsamments
Deerford	Fine-silty, mixed, thermic Albic Glossic Natraqualfs
Dexter	Fine-silty, mixed, thermic Ultic Hapludalfs
Fausse	Very-fine, montmorillonitic, nonacid, thermic Typic Fluvaquents
Feliciana	Fine-silty, mixed, thermic Ultic Hapludalfs
Fluker	Fine-silty, siliceous, thermic Aquic Fraglossudalfs
*Frost, ponded	Fine-silty, mixed, thermic Typic Glossaqualfs
Guyton	Fine-silty, siliceous, thermic Typic Glossaqualfs
Kenefick	Fine-loamy, siliceous, thermic Ultic Hapludalfs
Latanier	Clayey over loamy, mixed, thermic Vertic Hapludolls
Loring	Fine-silty, mixed, thermic Typic Fragiudalfs
Lytle	Fine-loamy, siliceous, thermic Typic Paleudults
Moreland	Fine, mixed, thermic Vertic Hapludolls
Morganfield	Coarse-silty, mixed, nonacid, thermic Typic Udifluvents
Natchez	Coarse-silty, mixed, thermic Typic Eutrochrepts
Ochlockonee	Coarse-loamy, siliceous, acid, thermic Typic Udifluvents
Olivier	Fine-silty, mixed, thermic Aquic Fragiudalfs
Ouachita	Fine-silty, siliceous, thermic Fluventic Dystrochrepts
Pits.	
Riverwash.	
Robinsonville	Coarse-loamy, mixed, nonacid, thermic Typic Udifluvents
Ruston	Fine-loamy, siliceous, thermic Typic Paleudults
Sharkey	Very-fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Smithdale	Fine-loamy, siliceous, thermic Typic Hapludults
Tangi	Fine-silty, siliceous, thermic Typic Fragiudults
Toula	Fine-silty, siliceous, thermic Typic Fragiudults
Tunica	Clayey over loamy, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Urban land.	
Weyanoke	Coarse-silty, mixed, thermic Dystric Eutrochrepts

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