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SOIL SURVEY

Dale County Alabama

OUR SOIL ★ OUR STRENGTH

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with the
ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES
and the
ALABAMA AGRICULTURAL EXPERIMENT STATION

HOW TO USE THE SOIL SURVEY REPORT

THIS SURVEY of Dale County will serve several groups of readers. It will help farmers in planning the kind of management that will protect their soil and provide good yields; it will assist engineers in selecting sites for roads, buildings, ponds, and other structures; and it will add to soil scientists' knowledge.

In making this survey, soil scientists walked over the fields and woodlands. They dug holes and examined surface soils and subsoils; measured slopes with a hand level; noticed differences in the growth of crops, weeds, and brush; and, in fact, recorded all things about the soil that they believed might affect suitability for farming, engineering, forestry, and related uses.

The scientists plotted the boundaries of the soils on aerial photographs. Then cartographers prepared from aerial photographs the detailed soil map in the back of the report. Fields, woods, roads, and many other landmarks can be seen on the map.

Locating the Soils

Use the index to map sheets to locate areas on the large map. The index is a map of the county on which numbered rectangles have been drawn to show that section of the county represented by each sheet. When the correct sheet of the large map is found, it will be seen that boundaries of the soil are outlined, and that there is a symbol for each kind of soil, wherever it appears on the map. Suppose, for example, an area located on the map has the symbol LaB. The legend on the detailed map shows that this symbol stands for Lakeland loamy fine sand, 0 to 5 percent slopes. This soil and all others mapped in the county are described in the subsection, Soil Series, Types, and Phases.

Finding Information

Few readers will be interested in all the report, for it has special sections for different groups. The section, General Nature of the Area, which discusses climate, geology, water supply, and other subjects, will be of interest mainly to those not familiar with the county.

Farmers and those who work with farmers will want to learn about soils in the subsection, Soil Series, Types, and Phases, and then go to the section, Use and Management of Soils. In this way they first identify the soils on their farm and then learn how these soils can be managed and what yields can be expected. The soils are grouped in capability units; that is, groups of soils that need similar management and respond to this management in about the same way. For example, in the subsection, Soil Series, Types, and Phases, Lakeland loamy fine sand, 0 to 5 percent slopes, is shown to be in capability unit IIIs–1. The management needed for this soil, therefore, will be found under the heading, Capability Unit IIIs–1, in the subsection, Capability Units in Dale County.

Soil Scientists will find information about how soils were formed and how they are classified in the section, Formation, Classification, and Morphology.

Foresters will find information on the suitability of the soils for trees in the section, Use and Management of Soils and in the subsection, Soil Series, Types, and Phases. Table 1 gives the site index of three kinds of pines for each soil in the county, and table 4 gives the acreage in woodland for each soil.

Students, teachers, and other users will find information about the soils and their management in various parts of the report, depending on their particular interest. Those interested in general soil areas will want to read the section, General Soil Map. This section tells about the principal kinds of soils, where they are found, and how they differ from each other.

* * * * *

Fieldwork for this survey was completed in 1956. Unless otherwise indicated, all statements in the report refer to conditions in the county at that time. This survey was made as a part of the technical assistance furnished the Wiregrass Soil Conservation District, of which Dale County is a part. Help in farm management can be obtained from members of the Soil Conservation Service in the county, the county agricultural agent, and the staff of the State Agricultural Experiment Station.

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Contents

	Page
Soil survey methods and definitions	1
General soil map	2
Norfolk-Ruston-Red Bay association	2
Norfolk-Ruston-Shubuta association	3
Lakeland-Eustis association	3
Shubuta-Cuthbert association	3
Use and management of soils	4
Capability grouping	4
Capability units in Dale county	5
Unit I-1	5
Unit I-2	5
Unit IIe-1	6
Unit IIe-2	6
Unit IIe-3	6
Unit IIw-1	7
Unit IIs-2	7
Unit IIIe-1	7
Unit IIIe-2	8
Unit IIIe-3	8
Unit IIIw-5	8
Unit IIIs-1	9
Unit IVe-1	9
Unit IVe-2	9
Unit IVe-3	10
Unit IVw-2	10
Unit IVs-1	11
Unit Vw-2	11
Unit VIe-2	11
Unit VIIe-1	11
Unit VIIe-2	12
Unit VIIs-1	12
Estimated yields	12
General practices of good management	15
Engineering properties of soils	17
Soils of Dale County	20
Soil series and their relations	20
Soil series, types, and phases	21
Americus series	26
Americus loamy fine sand:	
2 to 8 percent slopes	26
8 to 17 percent slopes	27
Bibb series	27
Bibb soils	27
Bibb soils, local alluvium phases	27
Boswell series	27
Boswell very fine sandy loam:	
Eroded very gently sloping moderately shallow phase	27
Eroded gently sloping moderately shallow phase	28
Eroded sloping moderately shallow phase	28
Boswell sandy clay:	
Severely eroded very gently sloping moderately shallow phase	28
Severely eroded gently sloping moderately shallow phase	28
Bowie series	28
Bowie fine sandy loam:	
Eroded gently sloping phase	29
Eroded very gently sloping phase	29
Eroded sloping phase	29
Carnegie series	29
Carnegie fine sandy loam, eroded very gently sloping phase	29
Cuthbert series	29
Cuthbert fine sandy loam:	
Eroded sloping phase	30
Eroded, 12 to 30 percent slopes	30
Cuthbert fine sandy clay, severely eroded, 8 to 30 percent slopes	30
Soils of Dale County—Continued	
Soil series, types, and phases—Continued	
Cuthbert, Boswell, and Eustis soils:	
Eroded sloping phases	30
12 to 30 percent slopes	30
Eustis series	30
Eustis loamy sand:	
0 to 5 percent slopes	30
5 to 12 percent slopes	31
12 to 25 percent slopes	31
Faceville series	31
Faceville fine sandy loam:	
Eroded very gently sloping phase	31
Level phase	31
Flint series	31
Flint fine sandy loam:	
Level phase	32
Eroded very gently sloping phase	32
Grady series	32
Grady soils	32
Gullied land	32
Gullied land	33
Hannahatchee series	33
Hannahatchee loam, local alluvium phase	33
Huckabee series	33
Huckabee loamy fine sand, 0 to 5 percent slopes	33
Iuka series	34
Iuka fine sandy loam	34
Iuka soils, local alluvium phases	34
Izagora series	34
Izagora very fine sandy loam:	
Level phase	34
Very gently sloping phase	35
Kalmia series	35
Kalmia fine sandy loam:	
Very gently sloping phase	35
Level phase	35
Kalmia loamy fine sand, thick surface phase	35
Lakeland series	35
Lakeland loamy fine sand:	
0 to 5 percent slopes	36
5 to 12 percent slopes	36
12 to 25 percent slopes	36
Lakeland and Cuthbert soils	36
Lakeland and Cuthbert soils:	
Eroded gently sloping phases	36
12 to 30 percent slopes	36
Leaf series	36
Leaf very fine sandy loam	37
Magnolia series	37
Magnolia fine sandy loam:	
Eroded very gently sloping phase	37
Level phase	37
Eroded gently sloping phase	37
Magnolia sandy clay loam:	
Severely eroded gently sloping phase	37
Severely eroded sloping phase	38
Marlboro series	38
Marlboro fine sandy loam:	
Level phase	38
Eroded very gently sloping phase	38
Myatt series	38
Myatt very fine sandy loam	38
Norfolk series	39
Norfolk fine sandy loam:	
Eroded very gently sloping phase	39
Level phase	39
Very gently sloping phase	39
Eroded gently sloping phase	39
Eroded sloping phase	39

Page

Soils of Dale County—Continued
Soil series, types, and phases—Continued
Norfolk series—Continued
Norfolk loamy sand:
Level thick surface phase 39
Very gently sloping thick surface phase 40
Gently sloping thick surface phase 40
Rains and Plummer soils:
Level phases 40
5 to 20 percent slopes 40
Red Bay series 40
Red Bay fine sandy loam:
Very gently sloping phase 41
Level phase 41
Eroded very gently sloping phase 41
Eroded gently sloping phase 41
Red Bay and Magnolia soils 41
Red Bay and Magnolia fine sandy loams:
Eroded very gently sloping phases 41
Eroded gently sloping phases 41
Eroded sloping phases 41
Red Bay and Magnolia sandy clay loams, severely eroded gently sloping phases 41
Ruston series 42
Ruston fine sandy loam:
Eroded very gently sloping phase 42
Level phase 42
Very gently sloping phase 42
Eroded gently sloping phase 42
Eroded sloping phase 42
Strongly sloping phase 43
Ruston loamy sand:
Very gently sloping thick surface phase 43
Gently sloping thick surface phase 43
Sandy alluvial land 43
Sandy alluvial land, poorly drained 43
Shubuta and Angie soils 43
Shubuta and Angie very fine sandy loams:
Eroded very gently sloping phases 43
Very gently sloping phases 44
Gently sloping phases 44
Eroded gently sloping phases 44

Page

Soils of Dale County—Continued
Soil series, types, and phases—Continued
Shubuta and Angie soils—Continued
Shubuta and Angie very fine sandy loams—Con.
Sloping phases 44
Eroded sloping phases 44
Shubuta and Angie sandy clay loams:
Severely eroded very gently sloping phases 44
Severely eroded gently sloping phases 44
Tifton series 44
Tifton fine sandy loam:
Eroded very gently sloping phase 45
Level phase 45
Eroded gently sloping phase 45
Tifton sandy clay loam, severely eroded gently sloping phase 45
Formation, classification, and morphology 45
Factors of soil formation in Dale County 45
Classification of soils 46
Morphology of soils by great soil groups 47
Red-Yellow Podzolic soils 47
Red members 47
Yellow members 48
Reddish-Brown Lateritic soils 48
Low-Humic Gley soils 48
Planosols 49
Alluvial soils 49
Regosols 49
General nature of the area 50
Climate 50
Geology 50
Water supply 51
Vegetation 51
Settlement and population 51
Schools 51
Railroads and roads 51
Farm, home, and community facilities 51
Recreation facilities 52
Industries 52
Agriculture 52
Glossary 53

SOIL SURVEY OF DALE COUNTY, ALABAMA

BY R. E. HENRY, IN CHARGE, T. L. TURNER AND C. B. LAWRENCE, SOIL CONSERVATION SERVICE

CORRELATION BY I. L. MARTIN, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE IN COOPERATION WITH THE ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES AND THE ALABAMA AGRICULTURAL EXPERIMENT STATION

DALE COUNTY is in southeastern Alabama, in an area called the Wiregrass Section (fig. 1). It lies wholly within the Coastal Plain. The county has a humid, warm-temperate, continental climate that is favorable for growing a wide variety of crops. Farming has been the main occupation since early settlement. Peanuts is the leading cash crop, and cotton is the second largest. The acreage in corn is larger than that in any other row crop. The county is among the leading hog-raising counties in the State. Much of the land that is not suitable for crops is in forest, and forest products provide an important source of income.

Soil Survey Methods and Definitions

The scientist who makes a soil survey examines soils in the field, classifies them in accordance with the facts he observes, and maps their boundaries on an aerial photograph or other map.

FIELD STUDY: The soil surveyor bores or digs many holes to see what the soils are like. These holes are not spaced in a regular pattern but are located according to the lay of the land. Usually they are not more than a quarter of a mile apart, and sometimes they are much closer. In most soils each boring or hole reveals several distinct layers, called horizons, which collectively are known as the soil profile. Each layer is studied to see how it differs from others in the profile, and to learn things about the soil that affect its capacity to produce plants.

Color is usually related to the content of organic matter. A dark soil generally contains more organic matter than a light one. Soils that have spots of gray, yellow, and brown in the lower layers are generally poorly drained and poorly aerated.

Texture, which is the proportion of sand, silt, and clay that makes up a soil, is judged by the way the soil feels when it is rolled between the fingers. Later the content of sand, silt, and clay is checked in the laboratory. Texture has much to do in determining how well the soil retains moisture, natural plant nutrients, and fertilizer, and how difficult it is to cultivate.

Structure is the arrangement of the variously shaped soil particles into larger aggregates, or peds, and the amount and arrangement of the pore spaces between these particles and peds. By observing structure, the scientist can judge permeability, or how easily moisture, air, and plant roots can penetrate the soils.

Consistence terms are used to describe the tendency of the soil particles and peds to crumble or stick together or the resistence of the soil to deformation or rupture. Common terms are *friable*, *plastic*, *hard*, *brittle*, and

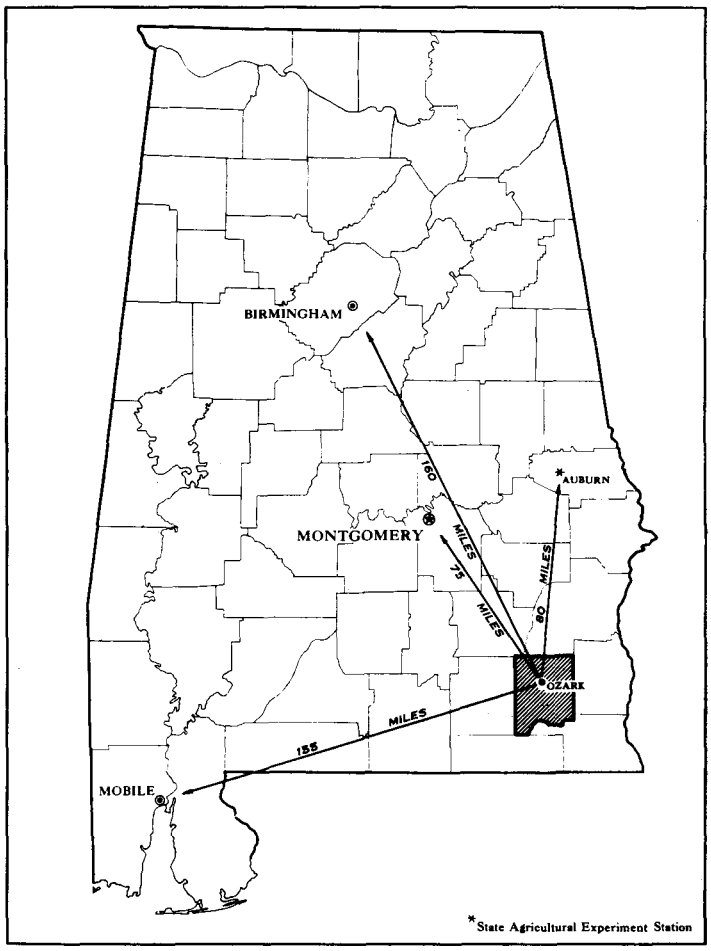

***Figure 1.*—Location of Dale County in Alabama.**

crumbly. Consistence indicates how difficult it is to keep the soil open and porous during cultivation.

Other characteristics observed in the field and considered in classifying the soil include the following: The depth of the soil over bedrock or compact layers; the presence of gravel or stones in amounts that will impede cultivation; the steepness and pattern of the slopes; the degree of erosion; the nature of the underlying parent material from which the soil has developed; and the acidity or alkalinity of the soil as measured by chemical tests.

CLASSIFICATION: On the basis of the characteristics observed by the survey team or determined by laboratory tests, soils are classified in phases, types, and series. The soil type is the basic classification unit; it may consist of several phases. Types that resemble each other in most of their characteristics are grouped into soil series.

Soil type.—Soils similar in kind, thickness, and arrangement of soil layers are classified as one soil type.

Soil phase.—Because of differences other than those of kind, thickness, and arrangement of the layers, some soil types are divided into two or more phases. In Dale County, soil types are divided into phases on the basis of range of slope, degree of erosion, local alluvium, shallowness, thickness of surface soil, or poor drainage, or a combination of these characteristics. Many types are divided into eroded phases and severely eroded phases, and into several different slope ranges. Eroded phases have had one-fourth to three-fourths of their surface soil removed; severely eroded phases have had more than three-fourths of their surface soil removed and generally part of their subsoil. Soils that have been more than severely eroded are called Gullied land, which is a miscellaneous land type.

The soil phase (or the soil type if it has not been subdivided) is the unit shown on the soil map. It is the unit that has the narrowest range of characteristics. Use and management, therefore, can be specified more easily for soil phases than for soil series or yet broader groups that allow more variation.

Soil series.—Two or more soil types that differ in texture of the surface soil, but are otherwise similar in kind, thickness, and arrangement of soil layers, are normally designated as a soil series. The names of the soil series are generally chosen from place names near where the series was first found. For example, Americus is the name of a series of excessively drained, very friable to loose, medium acid to strongly acid, deep, dark-brown, loamy sandy soils. These soils are widely distributed throughout the Coastal Plain on gentle to strong slopes. They were first analyzed and named near Americus, Georgia.

Miscellaneous land types.—Areas that have little true soil are not classified in types and series, but are identified by descriptive names, such as Gullied land or Sandy alluvial land, poorly drained.

Undifferentiated soil groups.—This kind of mapping unit has two or more similar soils that do not occur in regular geographic association. Cuthbert, Boswell, and Eustis soils, eroded sloping phases, is an undifferentiated soil group in Dale County.

SOIL CORRELATION: This is the process of assigning uniform names to soils of various areas in a nationwide system of mapping and classifying soils. The purpose of soil correlation is to show similarities and differences among the soils in each surveyed area and in the rest of the United States. To do this, the same combination of soil characteristics is given the same name, wherever found.

* * * * *

A more detailed discussion of the methods used in soil surveying can be found in the Soil Survey Manual.[1] Fuller definition of some of the foregoing terms and definitions of unfamiliar terms used in this report can be found in the glossary.

General Soil Map

Near the back of this report is a general soil map that shows the broad areas, or soil associations, in the county. Each association consists of soils that occur in a fairly definite pattern and proportion. The individual soils in any one association are not necessarily similar; they may be quite different.

The four soil associations are described in the following pages, and their broad agricultural uses are discussed. These descriptions, with the general soil map, are useful to those who want only a general idea of the nature and distribution of the soil resources of the county. This information is useful in determining the suitability of large areas in the county for some general type of agriculture or other broad land use.

Norfolk-Ruston-Red Bay Association

This association consists of deep, well-drained soils that occur on broad, smooth uplands. It has broad flats, undulating areas with sinkholes containing Grady soils, and gently sloping to sloping side slopes. The soils are dominantly fine sandy loams and have developed largely from beds of sands, sandy clay loams, and sandy clays.

This association, which has four separate areas, covers about 20 percent of the county. The largest area is in the southeastern part of the county, and another large area is in the southwestern corner. Smaller areas are near Daleville and Clopton.

The Norfolk, Ruston, and Red Bay soils are on flats and gently sloping ridges. They make up about 55 percent of the association. These well-drained soils have a friable fine sandy clay loam subsoil. The subsoil is brownish yellow to yellowish brown in the Norfolk soil, strong brown to yellowish red in the Ruston soil, and dark reddish brown to dark red in the Red Bay soils.

Tifton, Marlboro, Magnolia, and Faceville soils occur on the more nearly level areas and make up about 20 percent of the association. The Tifton and Marlboro soils have a yellow to yellowish-brown sandy clay loam or sandy clay subsoil, and the Magnolia soils have a red sandy clay subsoil. The subsoil of the Faceville soils is strong-brown to yellowish-red sandy clay loam.

Lakeland, Eustis, and Americus soils make up about 10 percent of the association. They have somewhat excessively drained profiles. These soils occur with the Red Bay soils on the gently sloping to moderately steep slopes. The remaining 10 percent of the association consists of poorly drained alluvium along drainways.

[1] SOIL SURVEY STAFF. SOIL SURVEY MANUAL. U.S. Dept. Agr. Handbook 18, 503 pp., illus. 1951.

About 70 percent of this association is cultivated. The rest consists of about equal acreages of pasture, woodland, and idle land. Most of the cultivated acreage consists of soils in capability classes I, II, and III.

This association is well suited to farming. Most of the acreage is easy to work and to conserve and responds very well to good management, especially fertilization. All types of farm machinery can be used easily. The soils are well suited to cotton, corn, and peanuts, which are extensively grown. They are also well suited to truck crops and small grain. Suitable pasture plants are coastal bermudagrass, bahiagrass, crimson clover, vetch, sericea lespedeza, and millet.

Norfolk-Ruston-Shubuta Association

This soil association consists of well drained and moderately well drained soils, most of which are deep. It has long, narrow, very gently sloping ridgetops, steeper side slopes, and narrow strips of alluvium in draws. The soils have a sandy loam to loamy sand surface soil and were developed from unconsolidated beds of sand, sandy clay, and clay.

This association, which is in two separate areas, makes up 15 percent of the county. The larger area is in the northeastern corner of the county, and the smaller area is in the northwestern corner.

In addition to the Norfolk, Ruston, and Shubuta soils, this association has Red Bay and Lakeland soils. The Norfolk, Ruston, and Red Bay soils occur on ridgetops that make up about 55 percent of this association. These well-drained soils have a friable fine sandy loam subsoil that is brownish yellow to yellowish brown in the Norfolk soils, strong brown to yellowish red in the Ruston soils, and dark reddish brown to dark red in the Red Bay soils.

The Shubuta soils occur on side slopes that make up 35 percent of the association. These soils are moderately well drained and have a subsoil of firm, yellowish-red to red sandy clay loam to clay. On ridgetops and side slopes are small areas of Lakeland soils that have excessively drained loamy sand profiles. About 10 percent of the association consists of narrow strips of poorly drained alluvium that lies along drainways.

Approximately 65 percent of this association is cultivated. About 10 percent is idle, 10 percent is in pasture, and 15 percent is woodland. Much of the cultivated acreage consists of soils in capability classes II, III, and IV.

This association is moderately well suited to farming. Most of the acreage is easy to work and to conserve, and the soils respond well to good management, especially fertilization. Nearly all types of farm machinery can be easily used. The soils are well suited to cotton, corn, and peanuts, which are widely grown. They are also well suited to truck crops. Suitable pasture plants are coastal bermudagrass, bahiagrass, crimson clover, vetch, sericea lespedeza, and millet.

Lakeland-Eustis Association

This association consists of somewhat excessively drained, deep sandy soils that occur on ridgetops and steep side slopes. It has long, narrow, very gently sloping ridgetops, steep or moderately steep side slopes, and narrow strips of poorly drained alluvium in draws.

This association, the most extensive in the county, covers about 40 percent of the total acreage. It has two separate areas. The larger area is a strip, 6 to 8 miles wide, that extends from Clayhatchee eastward to Henry County. The smaller area extends from an area south of Skipperville northward to Barbour County.

In addition to the Lakeland and Eustis soils, this association has Norfolk, Ruston, and Cuthbert soils. The Lakeland and Eustis soils make up about 60 percent of the association. They occur on steep side slopes. They have a loose loamy sand subsoil that is pale yellow to light yellowish brown in the Lakeland soils and yellowish brown in the Eustis soils. The Norfolk and Ruston soils make up about 10 percent of the association and are in small areas on ridgetops. They have a loamy sand or fine sandy loam surface soil and a sandy clay loam subsoil. The Cuthbert soils make up about 20 percent of the association and occur with the Lakeland soils on the steep side slopes. They are moderately well drained to somewhat poorly drained and have a yellowish red sandy clay or clay subsoil. About 10 percent of the association consists of poorly drained alluvium along drainways.

About 35 percent of this association is cultivated, 20 percent is idle, 40 percent is woodland, and 5 percent is in pasture. Much of the acreage consists of soils in capability classes III and IV.

This association is not very well suited to farming. The soils are droughty and highly leached. Yields of all crops are considerably lower than the county average, but nearly all types of farm machinery can be used. The main crops are cotton, corn, peanuts, and truck crops. The best suited crops are peanuts and early truck crops. Bahiagrass is a suitable pasture plant.

Shubuta-Cuthbert Association

This association consists of moderately well drained to somewhat poorly drained soils that have a clayey subsoil. It occupies highly dissected ridgetops, steep side slopes, and many narrow bands of local alluvium along small streams.

This association covers about 25 percent of the county. In addition to the dominant Shubuta and Cuthbert soils, the association has smaller areas of Boswell, Ruston, and Eustis soils.

The Shubuta soils and some Boswell and Ruston soils occur on the ridgetops and gentler side slopes. These ridgetops and slopes make up 40 percent of the association. The surface soil of these soils is dominantly gray to grayish-brown loamy sand to fine sandy loam. Much of this part of the association, however, has been eroded, and its surface soil is now a sandy clay loam. The subsoil is yellowish-red to red clay in the Shubuta soils, reddish-brown to red clay in the Boswell soils, and yellowish-red sandy clay loam in the Ruston soils.

The Cuthbert soils are on the sloping to steep side slopes. These slopes make up 50 percent of the association. Cuthbert soils have a sandy clay or clay subsoil. Small areas of Eustis soils occur on both ridgetops and side slopes. The narrow strips of poorly drained alluvium along the drainways make up about 10 percent of the association.

About 20 percent of this association is cultivated, 10 percent is idle, 5 percent is in pasture, and 65 percent is woodland. Much of the cultivated acreage consists of soils in capability classes III and IV.

The more gentle slopes of this association are used for cultivated crops, but generally the soils are only moderately well suited to row crops. The association is more valuable for the production of timber than it is for other uses.

Use and Management of Soils

This section consists of three main parts. In the first part, after the nationwide system of capability classification is described, the soils of the county are grouped in capability units, or management groups, and management is suggested for each group of soils. The second part consists of a table that gives estimated yields for crops and pasture under two levels of management and also the site indexes for species of pines. The third part discusses general practices of good soil management.

Capability Grouping

Capability grouping is a system of classification used to show the relative suitability of soils for crops, grazing, forestry, and wildlife. It is a practical grouping based on the needs and limitations of the soils, the risks of damage to them, and also their response to management. There are three levels above the soil mapping unit in this grouping. They are the capability unit, subclass, and class.

The capability unit, which can also be called a management group, is the lowest level of soil capability grouping. A capability unit is made up of soils similar in kind of management they need, in risk of damage, and in general suitability for use.

The next broader grouping, the subclass, is used to indicate the dominant kind of limitation. The letter symbol "e" indicates that the main limiting factor is risk of erosion if the plant cover is not maintained; "w" means that excess water retards plant growth or interferes with cultivation; and "s" shows that the soils are shallow, droughty, or usually low in fertility. In some areas there is another subclass, "c," for the soils that are limited chiefly by climate that is too cold or too dry.

The broadest grouping, the land capability class, is identified by Roman numerals. All the soils in one class have limitations and management problems of about the same degree, but of different kinds, as shown by the subclass. All the land classes except class I may have one or more subclasses.

In classes I, II, and III are soils that are suitable for annual or periodic cultivation of annual or short-lived crops.

Class I soils are those that have the widest range of use and the least risk of damage. They are level, or nearly level, productive, well drained, and easy to work. They can be cultivated with almost no risk of erosion and will remain productive if managed with normal care.

Class II soils can be cultivated regularly, but they do not have quite so wide a range of suitability as class I soils. Some class II soils are gently sloping; consequently, they need moderate care to prevent erosion. Other soils in class II may be slightly droughty or slightly wet, or somewhat limited in depth.

Class III soils can be cropped regularly but have a narrower range of use than class II soils. They need even more careful management.

In class IV are soils that should be cultivated only occasionally or only under very careful management.

In classes V, VI, and VII are soils that normally should not be cultivated for annual or short-lived crops, but they can be used for pasture or range, for woodland, and for wildlife habitats.

Class V soils are nearly level and gently sloping but are droughty, wet, low in fertility, or otherwise unsuitable for cultivation.

Class VI soils are not suitable for crops because they are steep or droughty or otherwise limited, but they give fair yields of forage or forest products. Some soils in class VI can, without damage, be cultivated enough so that fruit trees or forest trees can be set out or pasture crops seeded.

Class VII soils provide only poor to fair yields of forage or forest products and have characteristics that limit them severely for these uses.

In class VIII are soils that have no agricultural use. Some of them have value as watersheds, wildlife habitats, and recreation sites. Dale County has no class VIII soils.

The soils of Dale County have been placed in the following capability classes, subclasses, and units:

Class I.—Level or nearly level, productive soils that are very good for crops and have few limitations.
- Unit I–1.—Deep, well-drained soils that have a friable sandy clay loam subsoil.
- Unit I–2.—Deep, well-drained soils that have a firm to friable sandy clay to sandy clay loam subsoil.

Class II.—Soils that have limitations that reduce the choice of plants or require moderate conservation practices.
- Subclass IIe.—Level to very gently sloping soils that are likely to erode if not protected.
  - Unit IIe–1.—Very gently sloping, deep, well-drained soils that have a friable sandy clay loam subsoil.
  - Unit IIe–2.—Very gently sloping, deep, well-drained soils that have a firm to friable sandy clay to sandy clay loam subsoil.
  - Unit IIe–3.—Level to very gently sloping, moderately well drained soils that have a slowly permeable subsoil.
- Subclass IIw.—Level and nearly level soils in which water restricts the choice of crops.
  - Unit IIw–1.—Loamy soils consisting of local and general alluvium.
- Subclass IIs.—Soils that are limited by low content of plant nutrients.
  - Unit IIs–2.—Level to very gently sloping, somewhat excessively drained loamy sands.

Class III.—Soils that have severe limitations that reduce the choice of plants or require special conservation, or both.
- Subclass IIIe.—Very gently sloping and gently sloping soils that are eroded or will erode if not protected.
  - Unit IIIe–1.—Gently sloping, deep, well-drained soils that have a friable sandy clay loam subsoil.
  - Unit IIIe–2.—Gently sloping, deep, well-drained soils that have a firm to friable sandy clay to sandy clay loam subsoil.
  - Unit IIIe–3.—Very gently sloping and gently sloping, moderately deep, moderately well drained soils that have a slowly permeable subsoil.
- Subclass IIIw.—Soils severely limited by excess water.
  - Unit IIIw–5.—Level to very gently sloping, moderately deep, somewhat poorly drained soils on stream terraces.
- Subclass IIIs.—Soils that are severely limited in the root zone by a low content of plant nutrients.
  - Unit IIIs–1.—Level to gently sloping, deep, somewhat excessively drained loamy sands and loamy fine sands.

Class IV.—Soils that have very severe limitations that restrict the choice of plants or require careful management, or both.
- Subclass IVe.—Soils that will erode if not protected.
  - Unit IVe–1.—Sloping, deep, well-drained soils that have a friable sandy clay loam subsoil.
  - Unit IVe–2.—Gently sloping to sloping, deep, well-drained soils that have a firm to friable sandy clay to sandy clay loam subsoil.
  - Unit IVe–3.—Very gently sloping severely eroded and gently sloping moderately eroded, moderately deep, moderately well drained soils that have a slowly permeable subsoil.
- Subclass IVw.—Soils severely limited by excess water.
  - Unit IVw–2.—Nearly level, poorly drained soils that have a slowly permeable subsoil.
- Subclass IVs.—Soils severely limited by lack of plant nutrients and droughtiness.
  - Unit IVs–1.—Gently sloping to sloping, deep, somewhat excessively drained loamy sands and loamy fine sands.

Class V.—Soils that have little or no erosion hazard but have other limitations that restrict their use largely to pasture, range, woodland, or wildlife habitats.
- Subclass Vw.—Soils limited by excess water.
  - Unit Vw–2.—Poorly drained soils on stream terraces, first bottoms, and upland flats.

Class VI.—Soils that have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, woodland, or wildlife food and cover.
- Subclass VIe.—Soils that are highly susceptible to erosion.
  - Unit VIe–2.—Gently sloping to strongly sloping soils that are moderately to severely eroded.

Class VII.—Soils with severe limitations that make them unsuited to cultivation and restrict the use largely to grazing, woodland, or wildlife habitats.
- Subclass VIIe.—Soils susceptible to rapid erosion if not protected.
  - Unit VIIe–1.—Areas that are severely gullied.
  - Unit VIIe–2.—Slightly to severely eroded sloping to steep soils that have a predominantly fine textured subsoil.
- Subclass VIIs.—Soils that are extremely low in plant nutrients.
  - Unit VIIs–1.—Sloping to moderately steep, somewhat excessively drained loamy sands.

Capability units in Dale County

The suggestions on suitable uses and management that are given in the following pages for the capability units of Dale County were taken from the Land Capability Guide Sheets of the Soil Conservation Service and the Handbook of Alabama Agriculture.[2]

Specific fertilizer and lime recommendations are not given. Soil samples should be taken in the separate fields and analyzed in the soil testing laboratory at Auburn so that definite lime and fertilizer needs for the fields and for the crop to be grown can be determined. The local agricultural technicians and specialists will assist in arranging for these tests. Generally, all soils that have been used for crops or pasture for a number of years are deficient in plant nutrients. If soil tests have not been made, use the approximate rates of liming and fertilization given in the Handbook of Alabama Agriculture.

CAPABILITY UNIT I–1

Deep, well-drained soils that have a friable sandy clay loam subsoil

These medium acid soils contain small amounts of plant nutrients and organic matter but respond well to fertilizer. They have a very friable fine sandy loam surface soil. These soils have a moderate capacity for available moisture and are permeable to depths of 3 to 5 feet. They are easy to work and to conserve and can be intensively cultivated.

The soils in this unit are:

Kalmia fine sandy loam, level phase.
Norfolk fine sandy loam, level phase.
Red Bay fine sandy loam, level phase.
Ruston fine sandy loam, level phase.

These soils are well suited to cotton, corn, small grain, truck crops, and, especially, peanuts. They can also be used for pasture, hay, and woodland, and they provide good wildlife habitats. Coastal bermudagrass, bahiagrass, crimson clover, vetch, sericea lespedeza, and millet are suitable pasture plants. Pine trees grow rapidly.

Cotton, peanuts, or other row crops are commonly grown on the same soil year after year. These crops are followed by a winter legume or a small grain that is turned under in spring—a practice that supplies organic matter and improves tilth. Peanuts, however, should not be grown in the same place more than once every 3 years.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

These soils do not require special practices of tillage or water control. They have few limitations to the use of farm machinery.

CAPABILITY UNIT I–2

Deep, well-drained soils that have a firm to friable sandy clay to sandy clay loam subsoil

These medium acid soils contain small amounts of plant nutrients and organic matter but respond well to fertilizer. They have a very friable fine sandy loam surface soil. Their capacity for available moisture is moderately high to high, and they are permeable to depths of 3 to 5 feet. These productive soils are easy to work and to conserve and can be intensively cultivated.

The soils in this unit are:

Faceville fine sandy loam, level phase.
Magnolia fine sandy loam, level phase.
Marlboro fine sandy loam, level phase.
Tifton fine sandy loam, level phase.

These soils are well suited to corn, peanuts, small grain, truck crops, and, especially, cotton. They can also be used for pasture, hay, and woodland, and they provide good habitats for wildlife. Suitable pasture plants are sericea lespedeza, coastal bermudagrass, bahiagrass, crimson clover, vetch, sericea lespedeza, and millet. Pines grow very rapidly.

These soils are only slightly susceptible to erosion. They can be kept highly productive by alternating cover crops and row crops and by using crop residues to protect the soil. Peanuts should not be grown in the same place more than once in 3 years.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

These soils do not require special practices of tillage or water control. They have few limitations to the use of farm machinery.

[2] ALABAMA POLYTECHNIC INSTITUTE. 1951 HANDBOOK OF ALABAMA AGRICULTURE. 5th ed., 398 pp., illus. Auburn, Ala.

CAPABILITY UNIT IIe-1

Very gently sloping, deep, well-drained soils that have a friable sandy clay loam subsoil

These medium acid soils contain small amounts of plant nutrients and organic matter but respond well to fertilizer. They have a very friable fine sandy loam surface soil. Their capacity for available moisture is moderate, and they are permeable to depths of 3 to 5 feet. These productive soils are easy to work and moderately easy to conserve. They are suited to moderately intensive cultivation.

The soils in this unit are:

Kalmia fine sandy loam, very gently sloping phase.
Norfolk fine sandy loam, very gently sloping phase.
Norfolk fine sandy loam, eroded very gently sloping phase.
Red Bay fine sandy loam, very gently sloping phase.
Red Bay fine sandy loam, eroded very gently sloping phase.
Ruston fine sandy loam, very gently sloping phase.
Ruston fine sandy loam, eroded very gently sloping phase.

These soils are well suited to cotton, corn, small grain, truck crops, and, especially, peanuts. They are also well suited to pasture, hay, and woodland, and they provide good habitats for wildlife. Suitable pasture plants are coastal bermudagrass, bahiagrass, crimson clover, sericea lespedeza, and millet. Pine trees grow rapidly.

Crop rotations that keep close-growing crops on the soil at least half of the time should be used. A suitable rotation consists of 2 years of coastal bermudagrass or bahiagrass followed by 2 years of row crops. In another suitable rotation, after oats are planted in fall and followed by native grasses in summer, winter legumes are planted in fall and followed by a row crop.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

Because these soils are susceptible to moderate erosion, they need terraces and vegetated waterways to remove the excess surface water (fig. 2).

CAPABILITY UNIT IIe-2

Very gently sloping, deep, well-drained soils that have a firm to friable sandy clay to sandy clay loam subsoil

These medium acid soils contain small amounts of plant nutrients and organic matter but respond well to fertilizer. They have a very friable fine sandy loam surface soil. Their capacity for available moisture is moderately high to high, and they are permeable to depths of 3 to 5 feet. These productive soils are easy to work and moderately easy to conserve. They are suited to moderately intensive cultivation.

The soils in this unit are:

Carnegie fine sandy loam, eroded very gently sloping phase.
Faceville fine sandy loam, eroded very gently sloping phase.
Magnolia fine sandy loam, eroded very gently sloping phase.
Marlboro fine sandy loam, eroded very gently sloping phase.
Red Bay and Magnolia fine sandy loams, eroded very gently sloping phases.
Tifton fine sandy loam, eroded very gently sloping phase.

These soils are well suited to cotton, corn, small grain, truck crops, and, especially, peanuts (fig. 3). They are also well suited to pasture, hay, and woodland and furnish good habitats for wildlife. Suitable pasture plants are coastal bermudagrass, bahiagrass, crimson clover, and sericea lespedeza. Pine trees grow rapidly.

Figure 2.—**Water-disposal area on Ruston fine sandy loam, eroded very gently sloping phase.**

Crop rotations that keep close-growing crops on the soil at least one-half of the time ought to be used. A suitable rotation consists of 2 years of coastal bermudagrass or bahiagrass followed by 2 years of row crops. In another suitable rotation, after oats are planted in fall and followed by native grasses in summer, winter legumes are planted in fall and followed by a row crop.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

If these soils are cultivated, they are susceptible to moderate erosion. They need terraces and vegetated waterways.

CAPABILITY UNIT IIe-3

Level to very gently sloping, moderately well drained soils that have a slowly permeable subsoil

These medium acid to strongly acid soils occur on stream terraces and on the upland. They contain small amounts of plant nutrients and organic matter but

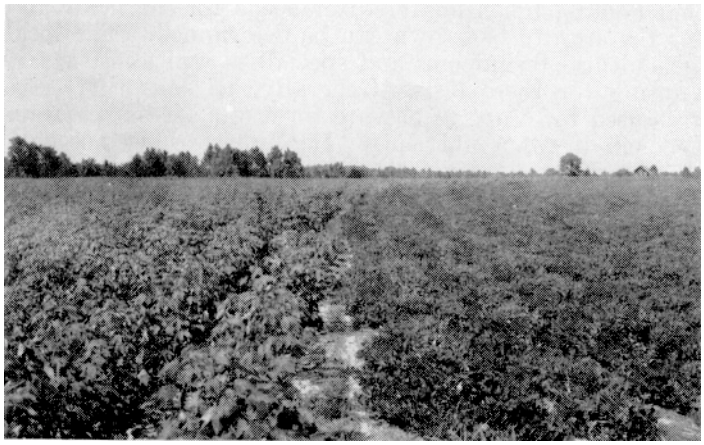

Figure 3.—**Peanuts and cotton on Magnolia fine sandy loam, eroded very gently sloping phase.**

respond moderately well to fertilizer. They have a very friable fine sandy loam surface soil and a firm to friable, compact sandy clay to clay subsoil. Their capacity for available moisture is moderate, and they are slowly permeable. These moderately productive soils are more difficult to work and to conserve than the soils in capability units IIe–1 and IIe–2. They are suited to moderately intensive cultivation.

The soils in this unit are:

Flint fine sandy loam, level phase.
Shubuta and Angie very fine sandy loams, very gently sloping phases.

These soils are well suited to pasture, hay, and woodland, and they furnish good habitats for wildlife. They are moderately well suited to cotton, corn, small grain, peanuts, and truck crops. Suitable pasture plants are bahiagrass, coastal bermudagrass, crimson clover, vetch, and sericea lespedeza. On the Flint soil, intermediate white clover can be used instead of crimson clover.

Crop rotations should be used that keep close-growing crops on the soil at least one-half of the time. A suitable rotation consists of 2 years of coastal bermudagrass followed by 2 years of row crops. In another suitable rotation, crimson clover or small grain is grown and harvested and followed the first year by native grass; then, the second year, a row crop is grown.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

The Shubuta and Angie soils that occur in the upland are susceptible to moderate erosion. They need terraces and vegetated waterways.

CAPABILITY UNIT IIw–1

Loamy soils consisting of local and general alluvium

In this unit are level to very gently sloping, deep, moderately well drained soils. These soils occur in depressions along small drainways in the upland and on the first bottoms of the larger streams. They are generally moderately fertile and medium acid. Their subsoil is friable fine sandy loam to silty clay loam. They have a high capacity for available moisture and are permeable to a depth of several feet. They are easy to work and to conserve and can be cultivated intensively.

The soils in this unit are:

Hannahatchee loam, local alluvium phase.
Iuka soils, local alluvium phases.
Iuka fine sandy loam.

The local alluvium soils are very well suited to corn, truck crops, hay, and pasture. They are well suited to many crops, including cotton and peanuts. Suitable pasture plants are bahiagrass, coastal bermudagrass, crimson clover, intermediate white clover, and sericea lespedeza. Pine trees grow very rapidly.

Row crops can be grown year after year, if they are followed by a winter legume or a small grain that is turned under in spring—a practice that furnishes organic matter to maintain good tilth. A better cropping system consists of 2 years of sod crops followed by 2 years of row crops.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

The soils from local alluvium often cannot be tilled so early in spring as the surrounding soils, for the prolonged heavy rains cause temporary ponding. Most of the acreage in this unit can be improved by artificial drainage, diversion ditches, and proper arrangement of crop rows. Because these soils often occur along the natural drainways, they can be seeded to permanent vegetation and thus provide excellent areas for water disposal.

CAPABILITY UNIT IIs–2

Level to very gently sloping, somewhat excessively drained loamy sands

These deep, medium acid soils occur on the upland and on stream terraces. They contain very small amounts of plant nutrients and organic matter. They have a loose loamy sand or loamy fine sand surface soil that is underlain at various depths by finer material. These soils have a low capacity for available moisture and do not retain plant nutrients well. They are easy to work and to conserve and are suited to moderately intensive cultivation.

The soils in this unit are:

Huckabee loamy fine sand, 0 to 5 percent slopes.
Kalmia loamy fine sand, thick surface phase.
Norfolk loamy sand, very gently sloping thick surface phase.
Norfolk loamy sand, level thick surface phase.
Ruston loamy sand, very gently sloping thick surface phase.

The loamy fine sand of the Huckabee soil extends to depths of more than 70 inches, where it is underlain by sandy clay. In the rest of the soils the finer textured materials occur at depths between 18 and 30 inches.

These soils are used for most crops grown in the county, but they are probably best suited to peanuts and early truck crops. They are well suited to woodland and to bahiagrass and coastal bermudagrass grown for pasture or hay. They furnish good habitats for wildlife.

Crop rotations that keep close-growing crops on the soil at least one-half of the time should be used. A suitable rotation consists of 2 years of bahiagrass followed by 2 years of row crops. In another suitable rotation, after oats are planted in fall and followed by native grasses in summer, winter legumes are planted in fall and followed by a row crop.

These soils need large additions of organic matter to reduce leaching and to improve water-holding capacity. To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

CAPABILITY UNIT IIIe–1

Gently sloping, deep, well-drained soils that have a friable sandy clay loam subsoil

These medium acid soils contain small amounts of plant nutrients and organic matter but respond well to fertilizer. They have a very friable fine sandy loam surface soil, 3 to 7 inches thick. Their subsoil is friable

sandy clay loam. These soils have a moderate capacity for available moisture and are permeable to depths of 3 to 5 feet. They are moderately productive and easy to work but are moderately difficult to conserve. They have moderately severe limitations to use for cultivated crops.

The soils in this unit are:

Norfolk fine sandy loam, eroded gently sloping phase.
Red Bay fine sandy loam, eroded gently sloping phase.
Ruston fine sandy loam, eroded gently sloping phase.

These soils are moderately well suited to peanuts, cotton, corn, small grain, and truck crops. They are well suited to pasture, hay, and woodland, and they furnish good habitats for wildlife. Suitable pasture plants are sericea lespedeza, bahiagrass, coastal bermudagrass, and crimson clover. Pine trees grow well.

Rotations that keep these soils in close-growing crops at least two-thirds of the time ought to be used. A suitable rotation consists of 4 years of coastal bermudagrass or bahiagrass followed by 2 years of row crops. Also suitable is oats the first year and then legumes that are allowed to reseed the second year and grow with native grass, which is followed the third year by a row crop.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

These soils are susceptible to moderately severe erosion if they are cultivated. They need terraces and vegetated waterways.

CAPABILITY UNIT IIIe–2

Gently sloping, deep, well-drained soils that have a firm to friable sandy clay to sandy clay loam subsoil

These medium acid soils contain small amounts of plant nutrients and organic matter but respond well to fertilizer. They have a very friable fine sandy loam surface soil, 3 to 6 inches thick. Their subsoil is firm to friable sandy clay to sandy clay loam. These soils have a moderately high capacity for available moisture and are permeable to depths of 3 to 5 feet. They are moderately productive soils and are easy to work but moderately difficult to conserve. Their limitations to use for cultivated crops are moderately severe.

The soils in this unit are:

Magnolia fine sandy loam, eroded gently sloping phase.
Red Bay and Magnolia fine sandy loams, eroded gently sloping phases.
Tifton fine sandy loam, eroded gently sloping phase.

These soils are moderately well suited to cotton, small grain, and truck crops. They are well suited to pasture, hay, and woodland, and they furnish good habitats for wildlife. Suitable pasture plants are coastal bermudagrass, bahiagrass, crimson clover, sericea lespedeza, and millet. Pine trees grow rapidly.

Rotations that keep these soils in close-growing crops at least two-thirds of the time should be used. A suitable rotation consists of 4 years of coastal bermudagrass or bahiagrass followed by 2 years of row crops, or of 4 years of sericea lespedeza and reseeding crimson clover followed by 2 years of row crops.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

These soils are susceptible to moderately severe erosion if they are cultivated. They need terraces that have vegetated waterways.

CAPABILITY UNIT IIIe–3

Very gently sloping and gently sloping, moderately deep, moderately well drained soils that have a slowly permeable subsoil

These soils are medium acid to strongly acid. They have a very friable fine sandy loam surface soil and a friable to firm, compact sandy clay to clay subsoil. The very gently sloping soils are moderately eroded, and the gently sloping soils are slightly eroded. The soils contain small amounts of plant nutrients and organic matter and respond moderately well to fertilizer. The capacity for available moisture is moderate. These soils are generally moderately low in productivity and are somewhat difficult to work and to conserve. They have moderately severe limitations to use for cultivated crops.

The soils in this unit are:

Boswell very fine sandy loam, eroded very gently sloping moderately shallow phase.
Bowie fine sandy loam, eroded very gently sloping phase.
Flint fine sandy loam, eroded very gently sloping phase.
Shubuta and Angie very fine sandy loams, eroded very gently sloping phases.
Shubuta and Angie very fine sandy loams, gently sloping phases.

These soils are better suited to pasture, hay, and woodland than they are to cultivated crops. They furnish good habitats for wildlife. They can produce low to moderate yields of cotton, corn, peanuts, small grain, and truck crops. Suitable pasture plants are sericea lespedeza, bahiagrass, coastal bermudagrass, and crimson clover. Pine trees grow rapidly.

Rotations that keep these soils in close-growing crops at least two-thirds of the time ought to be used. Suitable rotations are the same as those given for capability units IIIe–1 and IIIe–2.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen unless they follow or are grown with a legume.

These soils are susceptible to moderately severe erosion if they are cultivated. They need terraces and vegetated waterways.

CAPABILITY UNIT IIIw–5

Level to very gently sloping, moderately deep, somewhat poorly drained soils on stream terraces

These medium acid soils are low in fertility and organic matter. They have a very fine sandy loam surface soil. Their upper subsoil is moderately permeable, friable sandy loam. Their lower subsoil is slowly permeable, mottled sandy clay. The capacity for available moisture is moderately high.

Figure 4.—**Cattle grazing bahiagrass on Eustis loamy sand, 0 to 5 percent slopes.**

The soils in this unit are:

Izagora very fine sandy loam, level phase.
Izagora very fine sandy loam, very gently sloping phase.

These soils are more suitable for pasture, hay, woodland, and wildlife cover than they are for corn, sorghum, soybeans, and oats. Yields are medium to low. Sericea lespedeza, bahiagrass, and whiteclover are suitable pasture plants. Pine trees grow rapidly.

The cropping system most commonly used consists of row crops that are grown in the same place year after year and are followed each year by a winter legume or small grain to provide organic matter and to improve tilth. A more suitable rotation, however, is 2 years of a sod crop followed by 2 years of row crops.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

Drainage systems for the removal of surface water would probably improve most of these soils.

CAPABILITY UNIT IIIs-1

Level to gently sloping, deep, somewhat excessively drained loamy sands and loamy fine sands

These loamy sands occur on uplands and on stream terraces. They are very low in fertility and organic matter and are medium acid. Their surface soil and subsoil are loose loamy sand. This loamy sand is underlain by sandy clay loam at various depths. These soils have a low capacity for available moisture and do not retain plant nutrients long. They are easy to work and moderately easy to conserve.

The soils in this unit are:

Americus loamy fine sand, 2 to 8 percent slopes.
Eustis loamy sand, 0 to 5 percent slopes.
Lakeland loamy fine sand, 0 to 5 percent slopes.
Norfolk loamy sand, gently sloping thick surface phase.
Ruston loamy sand, gently sloping thick surface phase.

Except in the Norfolk and Ruston soils, the loamy sand extends to a depth of more than 30 inches, where it is underlain by sandy clay loam. In the Norfolk and Ruston soils, the finer textured material occurs at depths of 18 to 30 inches.

The soils of this unit are used for most crops grown in the county, but they are probably best suited to peanuts and early truck crops. They are also well suited to coastal bermudagrass and to bahiagrass grown for pasture or hay and to woodland (fig. 4). They furnish good habitats for wildlife. Growth of pine trees is moderately rapid.

Large amounts of organic matter are needed to reduce leaching and to improve the water-holding capacity. Rotations should keep close-growing crops on the soil at least two-thirds of the time. A suitable rotation is 4 years of bahiagrass followed by 2 years of row crops.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

CAPABILITY UNIT IVe-1

Sloping, deep, well-drained soils that have a friable sandy clay loam subsoil

These medium acid soils contain a small amount of plant nutrients and organic matter but respond well to fertilizer. They have a very friable fine sandy loam surface soil, 3 to 7 inches thick. They have a low to medium capacity for available moisture and are permeable to depths of 3 to 4 feet. These soils are easy to work but are difficult to conserve because of the high rate of surface runoff. They have severe limitations to use for cultivated crops.

The soils in this unit are:

Norfolk fine sandy loam, eroded sloping phase.
Ruston fine sandy loam, eroded sloping phase.

If these soils are intensely managed, they can be used for cotton, corn, peanuts, small grain, and truck crops. Better uses, however, are for pasture, hay, woodland, and wildlife habitats. Coastal bermudagrass, bahiagrass, crimson clover, and sericea lespedeza are suitable pasture plants. Growth of pine trees is moderately rapid.

If these soils are cultivated, rotations should be used that keep the soil in close-growing crops at least three-fourths of the time. A suitable rotation is 3 years of bahiagrass or coastal bermudagrass followed by 1 year of row crops, or sericea lespedeza and reseeding crimson clover for 3 years and followed by a row crop for 1 year.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

These soils are susceptible to severe erosion if they are cultivated. To remove excess surface water, terraces and vegetated waterways are needed.

CAPABILITY UNIT IVe-2

Gently sloping to sloping, deep, well-drained soils that have a firm to friable sandy clay to sandy clay loam subsoil

These medium acid soils contain small amounts of plant nutrients and organic matter but respond well to

Figure 5.—**Kudzu in water-disposal area. Gully has completely healed on Tifton sandy clay loam, severely eroded gently sloping phase.**

fertilizer. They are severely eroded, gently sloping sandy clay loams and eroded, sloping fine sandy loams. The severely eroded areas are difficult to work. These soils have a medium to low content of available moisture and are permeable to depths of 3 to 4 feet. They are difficult to conserve because of the rapid runoff. They have severe limitations to use for cultivated crops.

The soils in this unit are:

- Magnolia sandy clay loam, severely eroded gently sloping phase.
- Red Bay and Magnolia sandy clay loams, severely eroded gently sloping phases.
- Red Bay and Magnolia fine sandy loams, eroded sloping phases.
- Tifton sandy clay loam, severely eroded gently sloping phase.

If these soils are intensively managed, they can be used for cotton, corn, peanuts, small grain, and truck crops. They are, however, more suitable for pasture, hay, woodland, and habitats for wildlife. Bahiagrass, coastal bermudagrass, crimson clover, and sericea lespedeza are suitable pasture plants. Growth of pine trees is moderately rapid.

Because of the hazard of erosion, row crops should not be grown on these soils more than once in 4 years. The row crops should be grown in rotations with sericea lespedeza, kudzu, bahiagrass, coastal bermudagrass, or other deep-rooted perennials (fig. 5). These soils are suited to the same rotations as the soils of capability unit IVe–1.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen unless they follow or are grown with a legume.

These soils are susceptible to severe erosion if they are cultivated. They need terraces with vegetated waterways.

CAPABILITY UNIT IVe–3

Very gently sloping severely eroded and gently sloping moderately eroded, moderately deep, moderately well drained soils that have a slowly permeable subsoil

These soils are low in fertility and in organic matter and are medium acid to strongly acid. They have a loamy or clayey surface soil and a firm, compact sandy clay to clay subsoil. Permeability is slow to moderately slow, and the capacity for available moisture is moderate to low. The soils are difficult to work and to conserve. Cultivated areas and overgrazed pastures are very susceptible to erosion.

The soils in this unit are:

- Boswell sandy clay, severely eroded very gently sloping moderately shallow phase.
- Boswell very fine sandy loam, eroded gently sloping moderately shallow phase.
- Bowie fine sandy loam, eroded gently sloping phase.
- Shubuta and Angie sandy clay loams, severely eroded very gently sloping phases.
- Shubuta and Angie very fine sandy loams, eroded gently sloping phases.

These soils are probably best suited to pasture, hay, and woodland. They furnish good wildlife habitats. Suitable crops are cotton, corn, peanuts, truck crops, bahiagrass, coastal bermudagrass, and crimson clover. Growth of pine trees is moderately rapid (fig. 6).

If these soils are used for row crops, they must be intensively managed. Coastal bermudagrass, bahiagrass, or another sod crop should be grown for 3 years before a row crop is planted. A complete system of water disposal is needed.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen yearly unless they follow or are grown with a legume.

CAPABILITY UNIT IVw–2

Nearly level, poorly drained soils that have a slowly permeable subsoil

These moderately deep to shallow soils occur on stream terraces and in depressions on the upland. They are moderately fertile and medium acid to strongly acid. They have a very fine sandy loam to silt loam surface soil and a mottled, plastic sandy clay to clay subsoil. Their capacity for available moisture is moderate, and they are slowly permeable. These soils are likely to be flooded occasionally, and water may stand in depressions for long periods.

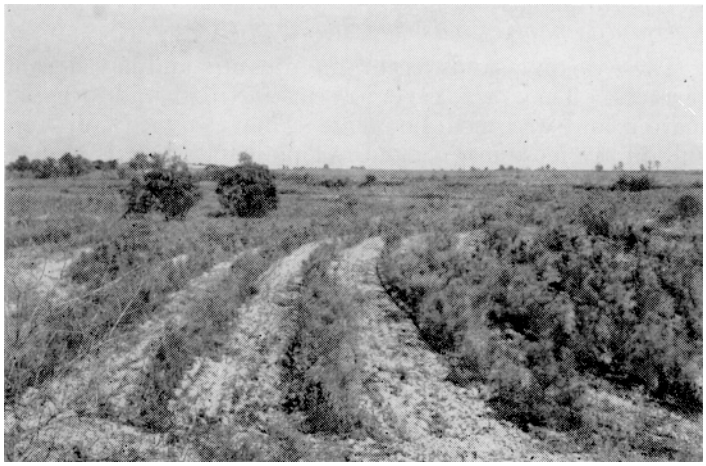

Figure 6.—**Three-year-old pines on Bowie fine sandy loam, eroded gently sloping phase.**

The soils in this unit are:

Grady soils.
Leaf very fine sandy loam.

These soils are well suited to pasture. Dallisgrass, bahiagrass, and coastal bermudagrass grow well. If cover crops are grown and turned under to provide organic matter, corn, soybeans, and truck crops generally give satisfactory yields. In most places shallow ditches are needed to drain these soils if they are used for row crops or pasture.

To insure high yields, both cultivated crops and pasture should receive yearly applications of phosphate and potash and occasional applications of lime. Nonlegumes require one or more applications of nitrogen unless they follow or are grown with a legume.

CAPABILITY UNIT IVs-1

Gently sloping to sloping, deep, somewhat excessively drained loamy sands and loamy fine sands

These soils are very low in fertility and organic matter and are medium acid. They have a low capacity for available moisture and do not retain plant nutrients long. Runoff is moderate to slow, and internal drainage is rapid. These soils are moderately susceptible to sheet erosion and highly susceptible to gully erosion.

The soils in this unit are:

Eustis loamy sand, 5 to 12 percent slopes.
Lakeland loamy fine sand, 5 to 12 percent slopes.

These soils are best suited to pasture, hay, and woodland. They furnish good wildlife habitats. Bahiagrass grows fairly well if nitrogen, phosphate, potash, and lime are applied frequently. Pine trees grow satisfactorily (fig. 7).

If these soils are badly needed and must be cultivated, coastal bermudagrass, or bahiagrass, or some other close-growing crop, should be grown for 3 years and then followed by 1 year of a row crop. Peanuts and early truck crops are probably better suited to these soils than cotton or corn.

CAPABILITY UNIT Vw-2

Poorly drained soils on stream terraces, first bottoms, and upland flats

These deep soils are level to moderately steep. They occur on the Coastal Plain. They are low to moderately low in fertility and medium acid to strongly acid. Their surface soil is loamy sand to silt loam, and their subsoil is a gray, mottled fine sand to sandy clay. These soils have a high water table, and some are likely to be flooded at times. Permeability is moderate in the upper part of the profile but grades to slow with increasing depth.

The soils in this unit are:

Bibb soils.
Bibb soils, local alluvium phases.
Myatt very fine sandy loam.
Rains and Plummer soils, level phases.
Rains and Plummer soils, 5 to 20 percent slopes.
Sandy alluvial land, poorly drained.

Because these soils are wet and likely to be flooded, they are not suited to row crops. If they are drained, they are suited to pasture and forest. Pine trees grow very rapidly on these soils. Intermediate white clover, ladino clover, dallisgrass, fescue, and bahiagrass grow well. Pasture needs periodic applications of a mineral fertilizer and occasional applications of lime to maintain high yields of good forage.

***Figure 7.*—Planted pines on Lakeland loamy fine sand, 5 to 12 percent slopes.**

CAPABILITY UNIT VIe-2

Gently sloping to strongly sloping soils that are moderately to severely eroded

These soils have a wide range of characteristics. They are deep to moderately shallow and are mainly well drained. Their surface soil ranges from fine sandy loam to sandy clay. The subsoil ranges from sandy clay loam to clay. The reaction is medium acid to strongly acid. Permeability is moderately slow to slow, and the capacity for available moisture is moderate. These soils have rapid runoff and a severe hazard of erosion.

The soils in this unit are:

Boswell sandy clay, severely eroded gently sloping moderately shallow phase.
Boswell very fine sandy loam, eroded sloping moderately shallow phase.
Bowie fine sandy loam, eroded sloping phase.
Lakeland and Cuthbert soils, eroded gently sloping phases.
Magnolia sandy clay loam, severely eroded sloping phase.
Ruston fine sandy loam, strongly sloping phase.
Shubuta and Angie sandy clay loams, severely eroded gently sloping phases.
Shubuta and Angie very fine sandy loams, sloping phases.
Shubuta and Angie very fine sandy loams, eroded sloping phases.

These soils are not suited to cultivated crops. Their best use is probably for pasture, hay, or woodland (fig. 8). They furnish good habitats for wildlife. Bahiagrass, coastal bermudagrass, crimson clover, and sericea lespedeza are suitable pasture plants. Pine trees grow well. A good sod can be maintained if these soils are properly fertilized annually and limed when needed. Because these soils are susceptible to sheet erosion and may even be gullied, pastures should not be overgrazed.

CAPABILITY UNIT VIIe-1

Areas that are severely gullied

These areas occur on gentle to moderately steep slopes on the upland of the Coastal Plain. They consist of

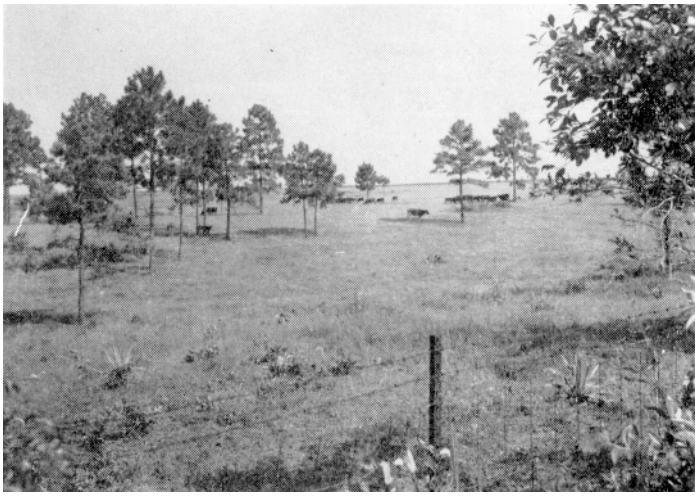

Figure 8.—**Cattle grazing bahiagrass on Lakeland and Cuthbert soils, eroded gently sloping phases. Sandy alluvial land, poorly drained, in the foreground.**

only one mapping unit—Gullied land. The surface soil of this land ranges from sand to clay loam, and the subsoil, from sand to clay. The gullies generally are less than 100 feet apart and are too deep to be crossed by tillage implements. In places, especially where the parent material is mainly loose, incoherent beds of sand, the gullies are the deep, caving type. This type of gully is common in the Red Bay soils.

These severely gullied areas are extremely limited in use and suitability, but fair to good forest probably can be established. Suitable pine trees should be planted in places where the cover is sparse or is lacking. Some kind of control is needed to prevent the gullies from getting larger.

CAPABILITY UNIT VIIe–2

Slightly to severely eroded sloping to steep soils that have a predominantly fine textured subsoil

These soils have a wide range in characteristics. They are moderately deep to shallow. Their surface soil ranges from loamy sand to sandy clay. The subsoil is predominantly firm, compact sandy clay or clay, but it ranges from sandy clay loam to clay. In most places it is slowly permeable. Runoff is rapid, and the hazard of erosion severe. The soils of this unit are steeper than those in capability unit VIe–2 and more severely eroded.

The soils in this unit are:

Cuthbert fine sandy loam, eroded sloping phase.
Cuthbert fine sandy loam, eroded, 12 to 30 percent slopes.
Cuthbert fine sandy clay, severely eroded, 8 to 30 percent slopes.
Cuthbert, Boswell, and Eustis soils, eroded sloping phases.
Cuthbert, Boswell, and Eustis soils, 12 to 30 percent slopes.
Lakeland and Cuthbert soils, 12 to 30 percent slopes.

Because they are steep, susceptible to severe erosion, and have a texture that is unfavorable for growing crops, these soils are probably best suited to woodland. Growth of pine trees is moderately rapid. They should either be planted or, by good management, helped to reproduce naturally (fig. 9).

CAPABILITY UNIT VIIs–1

Sloping to moderately steep, somewhat excessively drained loamy sands

These deep, medium acid soils are slightly eroded and are highly susceptible to further erosion. Their surface soil and subsoil are loamy sand or loamy fine sand. They are very low in fertility and in content of organic matter. These soils are droughty and susceptible to severe leaching of plant nutrients.

The soils in this unit are:

Americus loamy fine sand, 8 to 17 percent slopes.
Eustis loamy sand, 12 to 25 percent slopes.
Lakeland loamy fine sand, 12 to 25 percent slopes.

The best use for these soils probably is for suitable species of pines. Open areas that are idle should be planted to pines, and good management should be practiced on all woodland.

Estimated Yields

Table 1 gives, for each soil and land type, estimated yields to be expected under two levels of management, and the site index of various species of pines. The site index is the height in feet that a tree will grow in 50 years in well stocked stands that are protected from fire, overgrazing, insects, and disease.

In columns A are average crop yields that can be expected by farmers if they manage the soils like they are generally managed in Dale County. These yield figures are based on observations made by members of the survey party, information obtained from farmers and other agricultural workers, and yield tables for counties that have soils similar to those in Dale County.

In columns B are average crop yields that can be expected by farmers if they use the highest level of management that is thought to be feasible. On the whole, the yields in columns B are considerably higher than those in columns A. For crops of high value, however, there is little or no difference in the yields in columns A and B because the prevailing management approaches or is at the highest level thought to be feasible.

Figure 9.—**Selection cutting of slash pine planted in 1939 on Cuthbert fine sandy loam, eroded sloping phase.**

TABLE 1.—*Estimated acre yields of principal crops and carrying capacity of pasture under two levels of management, and site indexes for species of pine*

[In columns A are yields of crops and carrying capacity of pasture to be expected under management commonly practiced in the county; in columns B are those expected under the highest level of management thought to be feasible. Dashed lines indicate that crop is not commonly grown on the soil and is considered unsuited to it]

Soil	Capability unit	Peanuts		Cotton lint		Corn		Oats		Pasture		Pine trees (site index)		
		A	B	A	B	A	B	A	B	A	B	Loblolly	Slash and shortleaf	Longleaf
		Lb.	*Lb.*	*Lb.*	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]	*Ft.*	*Ft.*	*Ft.*
Americus loamy fine sand:														
2 to 8 percent slopes	IIIs-1	900	1, 500	175	275	15	30	20	35	110	160	90	80	70
8 to 17 percent slopes	VIIs-1	------	------	------	------	------	------	15	27	80	140	90	80	70
Bibb soils [2 3]	Vw-2	------	------	------	------	------	------	------	------	165	240	100	95	80
Bibb soils, local alluvium phases [2 3]	Vw-2	------	------	------	------	------	------	------	------	165	240	100	95	80
Boswell very fine sandy loam:														
Eroded very gently sloping moderately shallow phase	IIIe-3	800	1, 300	220	390	16	34	18	38	140	200	85	80	65
Eroded gently sloping moderately shallow phase	IVe-3	760	1, 250	200	370	15	30	17	36	135	190	85	80	65
Eroded sloping moderately shallow phase	VIe-2	------	------	------	------	------	------	16	32	130	185	85	80	65
Boswell sandy clay:														
Severely eroded very gently sloping moderately shallow phase	IVe-3	650	1, 150	160	310	13	26	14	28	115	160	70	60	60
Severely eroded gently sloping moderately shallow phase	VIe-2	------	------	------	------	------	------	16	32	110	170	70	60	60
Bowie fine sandy loam:														
Eroded gently sloping phase	IVe-3	790	1, 320	210	390	18	38	20	40	120	210	85	80	75
Eroded very gently sloping phase	IIIe-3	825	1, 375	235	410	22	42	24	44	140	230	85	80	75
Eroded sloping phase	VIe-2	------	------	------	------	------	------	16	34	100	180	85	80	75
Carnegie fine sandy loam, eroded very gently sloping phase	IIe-2	1, 225	1, 950	300	500	25	45	30	55	170	250	90	85	70
Cuthbert fine sandy loam:														
Eroded sloping phase	VIIe-2	------	------	------	------	------	------	------	------	------	------	80	75	70
Eroded, 12 to 30 percent slopes	VIIe-2	------	------	------	------	------	------	------	------	------	------	80	75	70
Cuthbert fine sandy clay, severely eroded, 8 to 30 percent slopes	VIIe-2	------	------	------	------	------	------	------	------	------	------	55	50	50
Cuthbert, Boswell, and Eustis soils:														
Eroded sloping phases	VIIe-2	------	------	------	------	------	------	------	------	------	------	80	75	70
12 to 30 percent slopes	VIIe-2	------	------	------	------	------	------	------	------	------	------	80	75	70
Eustis loamy sand:														
0 to 5 percent slopes	IIIs-1	900	1, 500	175	275	15	30	20	35	100	160	90	80	70
5 to 12 percent slopes	IVs-1	800	1, 400	150	240	13	25	18	32	90	150	90	80	70
12 to 25 percent slopes	VIIs-1	------	------	------	------	------	------	------	------	------	------	90	80	70
Faceville fine sandy loam:														
Eroded very gently sloping phase	IIe-2	1, 225	1, 950	300	500	25	45	30	55	170	260	85	80	75
Level phase	I-2	1, 300	2, 050	325	550	35	55	35	60	190	280	90	85	80
Flint fine sandy loam:														
Level phase	IIe-3	850	1, 400	260	420	26	44	26	44	180	260	90	85	80
Eroded very gently sloping phase	IIIe-3	800	1, 350	225	400	20	40	20	42	160	220	85	80	75
Grady soils [2 3]	IVw-2	------	------	------	------	30	50	30	50	165	240	100	90	70
Gullied land	VIIe-1	------	------	------	------	------	------	------	------	------	------	(4)	(4)	(4)
Hannahatchee loam, local alluvium phase	IIw-1	1, 300	2, 050	325	550	38	60	38	60	210	300	115	105	95
Huckabee loamy fine sand, 0 to 5 percent slopes	IIs-2	900	1, 500	175	290	17	34	22	38	100	160	90	80	70
Iuka fine sandy loam [3]	IIw-1	------	------	------	------	38	60	38	60	210	300	115	105	95
Iuka soils, local alluvium phases [3]	IIw-1	130	2, 050	325	550	38	60	38	60	210	300	115	105	95
Izagora very fine sandy loam:														
Level phase [2]	IIIw-5	------	------	------	------	20	35	25	45	165	240	100	90	70
Very gently sloping phase [3]	IIIw-5	------	------	------	------	20	35	25	45	165	240	100	90	70
Kalmia fine sandy loam:														
Very gently sloping phase	IIe-1	1, 200	1, 850	260	420	25	40	27	48	165	240	90	80	65
Level phase	I-1	1, 250	2, 000	275	475	28	47	30	55	170	250	90	80	65

See footnotes at end of table, p. 15.

TABLE 1.—*Estimated acre yields of principal crops and carrying capacity of pasture under two levels of management, and site indexes for species of pine*—Continued

Soil	Capability unit	Peanuts		Cotton lint		Corn		Oats		Pasture		Pine trees (site index)		
		A	B	A	B	A	B	A	B	A	B	Loblolly	Slash and shortleaf	Longleaf
		Lb.	*Lb.*	*Lb.*	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]	*Ft.*	*Ft.*	*Ft.*
Kalmia loamy fine sand, thick surface phase	IIs-2	950	1, 710	215	340	18	34	20	38	120	180	90	80	65
Lakeland loamy fine sand:														
0 to 5 percent slopes	IIIs-1	900	1, 500	175	275	15	30	20	35	100	160	90	80	70
5 to 12 percent slopes	IVs-1	800	1, 400	150	240	13	25	18	32	90	150	90	80	70
12 to 25 percent slopes	VIIs-1	------	------	------	------	------	------	------	------	------	------	90	80	70
Lakeland and Cuthbert soils:														
Eroded gently sloping phases	VIe-2	------	------	------	------	------	------	18	32	90	150	80	75	70
12 to 30 percent slopes	VIIe-2	------	------	------	------	------	------	------	------	------	------	80	75	70
Leaf very fine sandy loam [2] [3]	IVw-2	------	------	------	------	25	45	27	50	180	260	100	90	70
Magnolia fine sandy loam:														
Eroded very gently sloping phase	IIe-2	1, 225	1, 950	300	500	25	45	30	55	180	260	85	80	75
Level phase	I-2	1, 300	2, 050	325	550	35	55	35	60	190	280	90	85	80
Eroded gently sloping phase	IIIe-2	1, 125	1, 850	240	400	20	37	22	39	160	220	85	80	75
Magnolia sandy clay loam:														
Severely eroded gently sloping phase	IVe-2	850	1, 625	210	350	14	34	16	36	110	190	80	75	70
Severely eroded sloping phase	VIe-2	------	------	------	------	------	------	14	32	90	150	80	75	70
Marlboro fine sandy loam:														
Level phase	I-2	1, 300	2, 050	325	550	35	55	35	60	190	280	90	85	80
Eroded very gently sloping phase	IIe-2	1, 225	1, 950	300	500	25	45	30	55	170	260	85	80	75
Myatt very fine sandy loam [2]	Vw-2	------	------	------	------	15	40	------	------	165	240	100	95	------
Norfolk fine sandy loam:														
Eroded very gently sloping phase	IIe-1	1, 200	1, 900	270	460	25	42	25	45	155	230	85	75	60
Level phase	I-1	1, 300	2, 050	300	500	30	50	30	55	170	250	90	80	65
Very gently sloping phase	IIe-1	1, 250	1, 950	280	475	27	45	28	52	165	240	90	80	65
Eroded gently sloping phase	IIIe-1	1, 125	1, 850	240	400	20	37	22	39	150	220	85	75	60
Eroded sloping phase	IVe-1	900	1, 725	190	340	15	30	17	32	140	200	85	75	60
Norfolk loamy sand:														
Level thick surface phase	IIs-2	1, 000	1, 750	225	360	22	37	24	40	160	220	90	80	65
Very gently sloping thick surface phase	IIs-2	950	1, 675	200	340	18	34	20	36	150	210	90	80	65
Gently sloping thick surface phase	IIIs-1	910	1, 620	175	310	14	30	16	32	140	190	90	80	65
Rains and Plummer soils:														
Level phases [2]	Vw-2	------	------	------	------	------	------	------	------	165	230	100	90	70
5 to 20 percent slopes [2]	Vw-2	------	------	------	------	------	------	------	------	------	------	100	90	70
Red Bay fine sandy loam:														
Very gently sloping phase	IIe-1	1, 260	2, 010	310	520	32	52	34	56	170	250	85	80	70
Level phase	I-1	1, 300	2, 050	325	550	35	55	35	60	175	260	85	80	70
Eroded very gently sloping phase	IIe-1	1, 225	1, 950	290	480	25	45	27	48	160	240	80	75	65
Eroded gently sloping phase	IIIe-1	1, 125	1, 850	240	400	20	37	22	39	155	230	80	75	65
Red Bay and Magnolia fine sandy loams:														
Eroded very gently sloping phases	IIe-2	1, 200	1, 860	280	460	23	42	25	46	160	240	85	80	75
Eroded gently sloping phases	IIIe-2	1, 120	1, 820	230	390	18	34	20	36	155	230	85	80	75
Eroded sloping phases	IVe-2	890	1, 690	190	340	15	30	17	32	140	200	85	80	75
Red Bay and Magnolia sandy clay loams, severely eroded gently sloping phases	IVe-2	700	1, 320	160	310	12	22	16	34	130	190	80	75	70
Ruston fine sandy loam:														
Eroded very gently sloping phase	IIe-1	1, 200	1, 900	270	460	25	42	25	45	155	230	85	75	60
Level phase	I-1	1, 300	2, 050	300	500	30	50	30	55	170	250	90	80	65
Very gently sloping phase	IIe-1	1, 250	1, 950	280	475	27	45	28	52	165	240	90	80	65
Eroded gently sloping phase	IIIe-1	1, 125	1, 850	240	400	20	37	22	39	150	220	85	75	60
Eroded sloping phase	IVe-1	900	1, 725	190	340	15	30	17	32	140	200	85	75	60
Strongly sloping phase	VIe-2	------	------	------	------	------	------	------	------	------	------	90	80	65

See footnotes at end of table, p. 15.

TABLE 1.—*Estimated acre yields of principal crops and carrying capacity of pasture under two levels of management, and site indexes for species of pine*—Continued

Soil	Capability unit	Peanuts		Cotton lint		Corn		Oats		Pasture		Pine trees (site index)		
		A	B	A	B	A	B	A	B	A	B	Loblolly	Slash and shortleaf	Longleaf
		Lb.	*Lb.*	*Lb.*	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]	*Ft.*	*Ft.*	*Ft.*
Ruston loamy sand:														
Very gently sloping thick surface phase	IIs-2	1, 000	1, 750	225	360	22	37	24	40	150	210	90	80	65
Gently sloping thick surface phase	IIIs-1	910	1, 620	175	310	14	30	16	32	140	190	90	80	65
Sandy alluvial land, poorly drained [2 3]	Vw-2	------	------	-----	-----	25	40	25	40	150	220	100	95	------
Shubuta and Angie very fine sandy loams:														
Eroded very gently sloping phases	IIIe-3	800	1, 350	225	400	20	40	20	40	155	230	80	75	70
Very gently sloping phases	IIe-3	850	1, 400	260	420	26	44	26	44	160	240	85	80	75
Gently sloping phases	IIIe-3	800	1, 350	225	400	20	40	20	40	140	200	85	80	75
Eroded gently sloping phases	IVe-3	760	1, 250	200	380	17	36	18	38	135	190	80	75	70
Sloping phases	VIe-2	------	------	-----	-----	-----	-----	17	36	120	170	85	80	75
Eroded sloping phases	VIe-2	------	------	-----	-----	-----	-----	16	35	100	160	80	75	70
Shubuta and Angie sandy clay loams:														
Severely eroded very gently sloping phases	IVe-3	760	1, 250	200	380	17	36	18	38	130	190	55	50	50
Severely eroded gently sloping phases	VIe-2	740	1, 200	190	370	16	35	17	36	110	180	55	50	50
Tifton fine sandy loam:														
Eroded very gently sloping phase	IIe-2	1, 225	1, 950	300	500	25	45	30	55	180	260	85	80	65
Level phase	I-2	1, 300	2, 050	325	550	35	55	35	60	190	280	90	85	70
Eroded gently sloping phase	IIIe-2	1, 125	1, 850	240	400	20	37	22	39	160	220	85	80	65
Tifton sandy clay loam, severely eroded gently sloping phase	IVe-2	700	1, 320	160	310	12	22	16	34	110	190	80	75	60

[1] Number of days that 1 cow can be grazed on 1 acre during 1 year without injury to the pasture.
[2] Artificial drainage is required in most places for production of tilled crops and may be needed for pasture.
[3] Subject to periodic flooding by stream overflow or surface runoff.
[4] Variable.

The management practices given for each of the capability units and those given in the subsection, General Practices of Good Management, are considered necessary to obtain the yields in columns B. These yields are based largely on estimates made by men who have had experience with the soils and crops of the county. In making the estimates, known differences of the soils were considered; then it was judged how much the yields might be increased if these deficiencies were corrected within practical limits. The yields in columns B are those expected under the highest level of management thought to be feasible. A comparison of these yields with those in columns A will give some idea of the response of a particular soil to good management. On practically all soils of the county, more intensive management will bring increased yields.

Each soil in table 1 has only one site index estimated for each species of pine. This index represents the growth of trees when they are under good woodland management. A comparison of the site indexes shows that some soils are better suited to pine trees than others. For example, Ruston fine sandy loam, eroded very gently sloping phase—a deep, well-drained soil that has a sandy clay loam subsoil and a moderate capacity for available moisture—has a site index of 85 for loblolly pine, whereas Eustis loamy sand, 0 to 5 percent slopes—a deep, excessively drained soil having a loamy sand subsoil and a low capacity for available moisture—has a site index of 90 for this species.

Although the growth of trees, like that of cultivated crops, is affected by the characteristics of a soil, some soils that are poorly suited to crops are well suited to trees. The Izagora, Leaf, Myatt, and other poorly drained soils are limited in their suitability for cultivated crops because of their excess moisture, but these soils are well suited to timber. They have site indexes of 90 to 100 or more. The effect of erosion on the growth of pine trees is shown by a low site index for the severely eroded soils. On soils of the same series, the site index of severely eroded soils is 10 less than that of the uneroded soils.

General Practices of Good Management

In addition to the management suggested in the preceding pages for the individual soils and for the capa-

bility units, several general practices of soil management should be followed on practically all soils of the county. These practices are:

1. The use of good crop varieties that are suited to the soils of the county.
2. The use of suitable rotations that make the best use of available moisture. These rotations, as a rule, ought to include (*a*) legumes to add nitrogen, (*b*) row crops to control weeds, (*c*) deep rooted crops to forage for plant nutrients and increase the permeability of the subsoil, (*d*) pasture, meadow, or green manure to maintain organic matter, to improve tilth, and to protect the soil against erosion.
3. The use of barnyard manure, green manure, and crop residues to maintain the supply of nitrogen and organic matter and to improve tilth.
4. The application of lime, phosphate, nitrogen, and potash in proper amounts and at proper intervals as indicated by the results of soil tests.
5. The careful preparation of the seedbed and planting at a suitable time and rate.
6. The use of suitable measures to control weeds, insects, and disease.

PASTURE: In managing the soil so that it will produce good pasture, the seedbed needs to be thoroughly prepared and proper mixtures of suitable pasture plants should be seeded with care. The soil ought to be properly fertilized and limed, and grazing should be regulated. Undesirable herbage needs to be clipped from time to time.

WOODLAND: Although the growth of trees and their natural reproduction is affected by the soil, good management of the woodland is essential for maximum growth. All forest stands need to be protected from fire, browsing, and disease, and the trees should be selectively cut. The growth of desirable species of pines and hardwoods ought to be assisted by good management on soils to which the trees are suited. No areas of virgin forest remain in the county, but many areas that were originally in pine should be reforested to pine. Good stands of pine usually grow on the Shubuta, Boswell, Cuthbert, and other loamy soils, whereas pines may be absent or thinly scattered on the Lakeland, Eustis, and other deep, sandy soils.

TABLE 2.—*Soil properties important to engineering*

Soil	Parent material or underlying material	Depth to water table[1]	Dominant texture	
			Surface soil	Subsoil
		Feet		
Americus loamy fine sand, 2 to 8 percent slopes.	Sands or loamy sands at 60 to 120 inches.	10+	Loamy fine sand	Loamy sand
Bibb soils	Sandy loams to sandy clay loams at 42 to 64 inches. In some places layers of sand.	0–2	Loamy sand to silt loam.	Silt loam to sandy clay loam.
Bibb soils, local alluvium phases	Sandy loams to sandy clay loams at 42 to 64 inches. In some places layers of sand.	0–2	Loamy sand to silt loam.	Silt loam to sandy clay loam.
Boswell very fine sandy loam, eroded very gently sloping moderately shallow phase.	Interbedded sandy clay and clay shales and layers of sand and silt at 30 inches.	10+	Loamy sand to fine sandy loam.	Clay
Boswell sandy clay, severely eroded gently sloping moderately shallow phase.	Interbedded sandy clay and clay shales and layers of sand and silt at 30 inches. In some places the unweathered material may be at or near the surface.	10+	Sandy clay	Clay
Bowie fine sandy loam, eroded gently sloping phase.	Beds of sands, sandy loams, and sandy clay loams at 36 to 60 inches.	10+	Loamy sand to fine sandy loam.	Sandy clay loam
Carnegie fine sandy loam, eroded very gently sloping phase.	Sandy clay and clay at 48 to 60 inches	10+	Fine sandy loam	Sandy clay
Cuthbert fine sandy loam, eroded sloping phase.	Thinly bedded clays and sands at 6 to 20 inches.	10+	Loamy sand to fine sandy loam.	Clay
Cuthbert fine sandy clay, severely eroded, 8 to 30 percent slopes.	Thinly bedded clays and sands at 0 to 14 inches.	10+	Fine sandy clay	Clay
Cuthbert, Boswell, and Eustis soils, 12 to 30 percent slopes.	Variable: Sands, sandy clays, or clays at 6 inches to several feet in the sands.	10+	Loamy sand to sandy clay loams.	Loamy sand to clays.

See footnotes at end of table, p. 20.

Engineering Properties of Soils

This soil survey contains information about the soils of Dale County that will be helpful to engineers in selecting sites for buildings and other structures; in choosing locations for highways and airports; in determining how well soils can withstand traffic; in locating surfacing and other roadbuilding materials; and in planning dams, ponds, and other structures to control floods and conserve soil and water.

Although the soil maps and the text of this report are too general for some engineering purposes, they do provide information that is valuable in planning detailed field surveys and tests to determine conditions of soils in place at proposed construction sites. After the engineer tests the soil materials and observes their behavior in place and under varying conditions, he can anticipate to a certain degree the properties of individual soils.

ENGINEERING DATA: Engineers can find information that they can use on the soil map and in table 2. This table lists some of the properties of soils when in place. It was prepared mainly for agricultural engineering, but it also contains information that is important in other fields of engineering. Additional information useful to engineers is given in the sections, Soils of Dale County, and Formation, Classification, and Morphology.

Some terms used in this report may not be familiar to engineers. Other terms, although familiar, may have a meaning in soil science that differs from the meaning in engineering. These terms are defined in the sections, Soil Survey Methods and Definitions, and Glossary.

In table 2 the rates of infiltration are based on the capacity of the soils to take in water during periods of sustained rainfall. These rates are for the soil profile and the unconsolidated parent material combined. It is assumed that the soils have natural drainage and a uniform plant cover. Some of these rates are based on permeability tests that were made on soils similar to the soils for which the rates are given.

In estimating the suitability for terracing, the adaptability of the soils to a complete system of water control was considered. This system includes terraces with vegetated waterways. Americus loamy fine sand, 2 to 8 percent slopes, is rated unsuitable for terracing because it is highly susceptible to gullying, and vegetated waterways probably could not be established.

and suitability of soils for some agricultural structures

Permeability of subsoil [2]	Estimated rate of infiltration [3]	Drainage problems	Suitability for ponds	Suitability for terracing	Suitability for sprinkler irrigation	Other properties
	Inches per hour					
Very rapid	2. 0–3. 0	Somewhat excessive drainage.	Not suitable	Not suitable	Poor	Severe hazard of gully erosion when water is concentrated; sandy substratum.
Moderately slow	0. 1–0. 5	Frequent overflows; high water table.	Good		Poor	Sandy layers may be present.
Moderately slow	0. 2–0. 6	Seepy areas	Poor to good	(4)	Poor	Sandy layers may be present.
Slow	0. 1–0. 5	Slow internal drainage	Very good	Poor	Poor	Susceptible to severe sheet erosion; banks likely to slough.
Slow	0. 1–0. 5	Slow internal drainage.	Very good	(4)	Not suitable	Susceptible to severe sheet erosion; banks likely to slough.
Moderate in upper subsoil; slow in lower subsoil.	0. 1–1. 0	None	Fair to good	Good	Fair	Some places have perched water table during periods of prolonged rainfall.
Moderate	0. 3–0. 7	None	Good	Very good	Very good	Many iron concretions throughout the profile.
Slow	0. 1–0. 5	Slow internal drainage.	Good	Not suitable	Not suitable	Susceptible to severe sheet erosion; banks likely to slough.
Slow	0. 1–0. 4	Slow internal drainage.	Good	Not suitable	Not suitable	Susceptible to severe sheet erosion; banks likely to slough.
Slow to rapid	0. 1–1. 0	Seepy areas	Poor to good	Not suitable	Not suitable	Some seepy areas.

TABLE 2.—*Soil properties important to engineering and*

Soil	Parent material or underlying material	Depth to water table [1]	Dominant texture	
			Surface soil	Subsoil
		Feet		
Eustis loamy sand, 5 to 12 percent slopes.	Sands and loamy sands at 30 inches to 10 feet.	10+	Loamy sand	Loamy sand
Faceville fine sandy loam, eroded very gently sloping phase.	Sands, sandy clays, and clays at 36 to 64 inches.	10+	Fine sandy loam	Sandy clay loam to sandy clay.
Flint fine sandy loam, level phase	Sandy clays and clays at more than 30 inches.	2–6	Fine sandy loam	Clay loam to clay
Grady soils	Loams, clays, and some sandy layers at 30 to 50 inches.	0–2	Fine sandy loam to clay loam.	Silty clay to clay
Gullied land	Variable: In most places sands or loamy sands at more than 6 feet.	10+	Loamy sand to sandy clay.	Loamy sand to clay
Hannahatchee loam, local alluvium phase.	Sandy clay loams, sandy clays, clays with layers of sand at more than 60 inches.	6–10	Fine sandy loam to silty clay loam.	Silty clay loam
Huckabee loamy fine sand, 0 to 5 percent slopes.	Sands at more than 6 feet	10+	Loamy fine sand	Loamy sand
Iuka fine sandy loam	Beds of sandy loams, sandy clay loams, and sandy clays at more than 28 inches.	2–6	Very fine sandy loam to silt loam.	Silty clay loam
Iuka soils, local alluvium phases	Sandy clay loams that have some layers of sand at more than 30 inches.	6–10	Loamy sand to fine sandy loam.	Sandy loam to sandy clay loam.
Izagora very fine sandy loam, level phase.	Sandy clay loam or sandy clay at more than 28 inches.	2–6	Loamy fine sand to very fine sandy loam.	Sandy clay loam
Kalmia fine sandy loam, level phase	Sandy clay at more than 36 inches	10+	Loamy fine sand to fine sandy loam.	Fine sandy clay loam.
Kalmia loamy fine sand, thick surface phase.	Sandy clay at more than 42 inches	10+	Loamy fine sand	Fine sandy clay loam.
Lakeland loamy fine sand, 0 to 5 percent slopes.	Sands and loamy sands at 6 to 10 feet	10+	Loamy fine sand	Loamy fine sand
Lakeland and Cuthbert soils, 12 to 30 percent slopes.	Variable: Layers of sands and clays at more than 4 feet.	10+	Loamy sand to fine sandy loam.	Loamy sand to clay
Leaf very fine sandy loam	Clays at more than 24 inches	2–6	Very fine sandy loam to silt loam.	Clay
Magnolia fine sandy loam, eroded very gently sloping phase.	Sandy clays and clays at more than 40 inches. In some places layers of sand.	10+	Fine sandy loam	Sandy clay loam to sandy clay.
Magnolia sandy clay loam, severely eroded sloping phase.	Sandy clays and clays at more than 26 inches.	10+	Sandy clay loam	Sandy clay loam to sandy clay.
Marlboro fine sandy loam, level phase	Beds of sands, sandy loams, and sandy clays at more than 36 inches.	10+	Fine sandy loam	Sandy clay
Myatt very fine sandy loam	Sandy loams at more than 24 inches. In some places layers of sand.	0–2	Very fine sandy loam to silt loam.	Sandy clay loam to silty clay loam.
Norfolk fine sandy loam, eroded very gently sloping phase.	Variable: Stratified sands, sandy loams, and sandy clay loams at more than 36 inches.	10+	Loamy sand to fine sandy loam.	Fine sandy loam to fine sandy clay loam.
Norfolk loamy sand, very gently sloping thick surface phase.	Variable: Stratified sands, sandy loams, and sandy clay loams at more than 56 inches.	10+	Loamy sand	Sandy loam to sandy clay loam.

See footnotes at end of table, p. 20.

suitability of soils for some agricultural structures—Continued

Permeability of subsoil [2]	Estimated rate of infiltration [3]	Drainage problems	Suitability for ponds	Suitability for terracing	Suitability for sprinkler irrigation	Other properties
	Inches per hour					
Very rapid	2. 0–3. 0	Somewhat excessive drainage.	Poor	Not suitable	Poor [5]	Hazard of gully erosion; sandy substratum.
Moderate	0. 2–0. 7	None	Good	Very good	Very good	
Slow	0. 2–0. 5	Slow lateral movement of water.	Good	Not suitable	Poor [6]	Slow lateral movement of water.
Slow	0. 2–0. 5	Occurrence in depressions.	Usually not suitable because of permeable substratum.	Not suitable	Poor	Occurs in depressions having no natural drainage.
Very rapid to slow.	0. 7–3. 0	None	Usually not suitable because of permeable substratum.	Not suitable	Not suitable	
Moderate	0. 3–0. 7	Need of surface drainage.	Poor to good	Good	Good	Has sandy layers in some places.
Very rapid	2. 0–3. 0	Somewhat excessive drainage.	Poor	Not suitable	Poor [5]	
Moderate	0. 4–0. 7	Overflow hazard	Usually good	(4)	Good	Susceptible to overflow.
Moderate to rapid	0. 3–1. 0	Need of surface drainage.	Poor to good	Good	Usually good	Has sandy layers in some places.
Moderate in upper subsoil; slow in lower subsoil.	0. 1–0. 6	Perched water table in some places.	Good	(4)	Fair	Seepy spots are common.
Moderate to rapid.	0. 7–1. 5	None	Poor	Good	Good	Has sandy layers in some places.
Rapid	1. 0–3. 0	Somewhat excessive drainage.	Poor	Poor	Poor	Has sandy layers in some places.
Very rapid	2. 0–3. 0	Excessive drainage.	Poor	Not suitable	Poor [5]	Hazard of gully erosion; sandy substratum.
Rapid to slow	0. 1–2. 0	Seepy areas	Poor to good. May have sand layers.	Poor	Poor	Variable texture; has sandy layers in some places; seepy spots.
Slow	0. 1–0. 4	Slow lateral movement of water.	Very good		Poor	Slow lateral movement of water; high water table.
Moderate	0. 3–0. 8	None	Poor	Good	Good	Has sandy layers in some places.
Moderate	0. 3–0. 5	None	Poor	Good	Fair	Has sandy layers in some places.
Moderate	0. 2–0. 7	None	Good	Very good	Very good	
Slow	0. 4–2. 0	Sloughing of ditch banks; some places have sandy strata.	Poor to good		Poor	Has sandy layers in some places; high water table.
Moderate to rapid	0. 7–1. 5	None	Poor	Good	Good	Has layers of sand.
Rapid	1. 0–3. 0	Somewhat excessive drainage.	Poor	Poor	Poor	Has layers of sand.

TABLE 2.—*Soil properties important to engineering and*

Soil	Parent material or underlying material	Depth to water table [1]	Dominant texture	
			Surface soil	Subsoil
Rains and Plummer soils, level phases	Sand or sandy clay loam at more than 30 inches.	0–2	Loamy fine sand or fine sandy loam.	Sand to sandy clay loam.
Red Bay fine sandy loam, very gently sloping phase.	Interstratified fine sand and compact sandy clay at more than 60 inches.	10+	Loamy sand to fine sandy loam.	Sandy clay loam
Red Bay and Magnolia fine sandy loams, eroded gently sloping phases.	Red Bay: Interstratified fine sand and compact sandy clay at more than 60 inches. Magnolia: Sandy clays and clays at more than 40 inches. In some places layers of sand.	10+	Loamy sand to fine sandy loam.	Sandy clay loam to sandy clay.
Red Bay and Magnolia sandy clay loams, severely eroded gently sloping phases.	Red Bay: Interstratified fine sand and compact sandy clay at more than 60 inches. Magnolia: Sandy clays and clays at more than 26 inches.	10+	Sandy clay loam	Sandy clay loam to sandy clay.
Ruston fine sandy loam, eroded gently sloping phase.	Stratified sands to sandy clays at more than 36 inches.	10+	Loamy sand to fine sandy loam.	Sandy loam to sandy clay loam.
Ruston loamy sand, very gently sloping thick surface phase.	Stratified sands to sandy clays at more than 56 inches.	10+	Loamy sand	Sandy loam or sandy clay loam.
Sandy alluvial land, poorly drained	Layers of sands, silts, and clays at more than 48 inches.	0–6	Variable	Variable
Shubuta and Angie very fine sandy loams, eroded very gently sloping phases.	Thinly bedded sandy clay and clay shales at more than 20 inches.	10+	Loamy sand to fine sandy loam.	Sandy clay loam to clay.
Shubuta and Angie sandy clay loams, severely eroded gently sloping phases.	Thinly bedded sandy clay and clay shales at 0 to 20 inches.	10+	Sandy clay loam	Sandy clay loam to sandy clay.
Tifton fine sandy loam, eroded very gently sloping phase.	Reticulated sandy clay at more than 36 inches.	10+	Loamy sand to fine sandy loam.	Sandy clay loam to fine sandy clay.
Tifton sandy clay loam, severely eroded gently sloping phase.	Reticulated sandy clay at 0 to 20 inches	10+	Sandy clay loam	Sandy clay loam to sandy clay.

[1] Minimum depths to water table during wettest periods.
[2] Rating according to the velocity at which water and air are transmitted in the subsoil.
[3] Inches of water taken into the soil per hour during periods of sustained rainfall.
[4] Terracing not needed.

The estimates on suitability of the soils for ponds are based on the compactability of soils and the porosity of the underlying material.

The estimates on suitability for sprinkler irrigation are based on the water-holding capacity of the soils and their capacity to take in and transmit water. Also considered in these estimates were the suitability of the soils for crops of high value.

Soils of Dale County

This section is divided into two main parts. In the first part important characteristics of the soil series are given in a table, and in the second part the individual soils and miscellaneous land types are described in detail.

Soil Series and Their Relations

To make full use of this survey, it is necessary to know the soils and to understand how they are related to one another. These relations are more easily understood if the soils are placed in groups according to their position in the landscape. In table 3 the soils of this county are placed in three physiographic groups: (1) Soils on uplands; (2) soils on stream terraces; and (3) soils on first bottoms and local alluvium.

The soils on the Coastal Plain uplands lie above the stream terraces and flood plains. They developed from material derived directly from the weathering of beds of sand, sandy clay, and clay. The soils on the stream terraces developed from old alluvium that was washed from the uplands. The terraces are benchlike areas bordering streams and are not likely to be flooded frequently. The soils on the first bottoms are developing

suitability of soils for some agricultural structures—Continued

Permeability of subsoil [2]	Estimated rate of infiltration [3]	Drainage problems	Suitability for ponds	Suitability for terracing	Suitability for sprinkler irrigation	Other properties
Moderate to rapid	0. 2–0. 8	Seepy areas; ditch banks may slough.	Fair		Poor	Has sandy layers.
Rapid	0. 7–1. 4	None	Poor, sandy substratum.	Good	Good	Susceptible to gully erosion; sandy substratum.
Moderate to rapid	0. 4–1. 4	None	Poor	Good	Good	Susceptible to gully erosion, sandy substratum.
Moderate to rapid	0. 3–1. 0	None	Poor	Good	Poor	Susceptible to gully erosion; sandy substratum.
Moderate to rapid	0. 7–1. 5	None	Poor	Good	Good	Has layers of sand.
Rapid	1. 0–3. 0	Somewhat excessive drainage.	Poor	Poor	Poor	Has layers of sand.
Variable	0. 4–2. 0	Overflows; susceptible to seepage; high water table.	Poor to good [7]	([4])	Poor	Seepy spots common; banks may slough.
Variable	([8])	Slow permeability	Poor to good [7]	Fair	Poor	Susceptible to severe sheet erosion; banks likely to slough.
Slow	0. 1–0. 5	Slow permeability	Good	Poor	Poor	Susceptible to severe sheet erosion; banks are likely to slough.
Moderate	0. 3–0. 8	None	Good	Good	Good	Iron concretions throughout profile.
Moderate	0. 3–0. 6	None	Good	Fair	Poor	Iron concretions throughout profile.

[5] Has low water-holding capacity.
[6] Has low intake of water.
[7] Has sandy layers in some places.
[8] Variable.

from materials that were washed from the surrounding upland soils. The soils on local alluvium occur along upland drainways and in slight depressions. They are developing from recent alluvial materials that sloughed or were washed from surrounding upland soils.

Soil Series, Types, and Phases

This subsection is provided for those who want detailed information about the soils in the county. It describes the single soils, or mapping units; that is, the areas on the detailed map that are bounded by lines and identified by a symbol. For more general information about the soils, the reader can refer to the section, General Soil Map, in which the broad patterns of soils are discussed.

An important part of this subsection is the series description. The series description includes statements about the general nature of the soils in the series discussed and their relations to the soils in other series. It also includes statements on topography, drainage, native vegetation, and use of the soils.

Following the series description are descriptions of the single soils. All the soils in one series that have the same texture are together. For example, all Boswell soils that have a very fine sandy loam surface soil are together, and then all Boswell soils that have a sandy clay surface soil. The description of the first soil in each series contains a profile description that is generally representative of the soils in the series. The soils that follow, as a rule, are discussed in relation to the first soil described in the series. Some series that have different soil types have more than one profile description. If a mapping unit contains inclusions of other soils, these are named in the description of the mapping unit.

In describing soils, the scientist frequently assigns a letter symbol and a subscript, for example, "A_1," to the various layers. These symbols have a special meaning that concerns scientists and others who make a special study of soils. Most readers will need to remember only that all letter symbols beginning with "A" are for surface soil; those beginning with "B" are for subsoil; those beginning with "C" are for substratum, or parent material; and those beginning with "D" are for underlying material that is different from the material above.

The color of a soil can be described in words, such as yellowish brown; or can be stated in much more precise terms given by symbols for the hue, value, and chroma, such as 10YR 5/4. Precise symbols of this kind, called Munsell notations, are given along with descriptive words that tell the color of most of the soil horizons.

The location and distribution of the single soils are shown on the soil map at the back of this report. Their approximate acreage, proportionate extent, and acreage in cropland, woodland, pasture, and idle land are given in table 4. It will be helpful to refer to the section, Soil Survey Methods and Definitions, where "series," "types," "phases," and other special terms used in describing soils are listed. The glossary at the end of the report defines many other special terms.

TABLE 3.—*Soil series of Dale County, Ala., grouped according to topographic position, and important characteristics of each*

SOILS ON UPLANDS

Soil series	Parent material [1]	Surface soil and subsoil [2]	Drainage	Slope range	Degree of profile development
				Percent	
Americus	Moderately thick beds of acid loamy sands and sands.	Grayish-brown to dark reddish-brown loamy fine sand over reddish-brown to red loose loamy sand.	Somewhat excessive.	2–17+	Weak.
Angie	Thinly bedded clays and sandy clays.	Light-gray to dark grayish-brown loamy sand to fine sandy loam over yellow to brownish-yellow sandy clay that grades to mottled clay at depths of about 16 to 30 inches.	Moderately good to somewhat poor.	2–12	Medium.
Boswell	Acid clayey sediments	Gray to strong-brown loamy sand to fine sandy loam over red to reddish-brown clay; mottled clay at depth of about 16 inches.	Somewhat poor	2–12	Medium.
Bowie	Acid sandy clays	Grayish-brown to yellowish-brown fine sandy loam over light yellowish-brown to reddish-yellow compact sandy clay loam splotched with red; sandy clay loam or light sandy clay at depths of 26 to 40 inches.	Moderately good to good.	2–12	Strong.
Carnegie	Heavy sandy clays and clays	Dark-gray to brown fine sandy loam over yellowish-red to red sandy clay; iron concretions throughout profile; mottled clay at depth of more than 40 inches.	Good	2–5	Strong.
Cuthbert	Beds of clays with lenses of sand.	Light-brownish gray to pale-yellow loamy sand to fine sandy loam over yellowish-red clay; mottled clay at depths of 6 to 20 inches.	Moderately good to somewhat poor.	8–30	Weak.
Eustis	Thick beds of acid marine sands.	Brown loamy sand over strong-brown loose loamy sand; sandy clay loam at depths of 30 to 120 inches.	Somewhat excessive.	0–25	Weak.
Faceville	Unconsolidated marine sediments, such as sands, sandy clays, and clays.	Dark-gray to very dark grayish-brown fine sandy loam over strong-brown to yellowish-red sandy clay loam to sandy clay; mottled clay at depth of more than 36 inches.	Good	0–5	Strong.
Grady	Alluvium washed from acid loams and clays and, in places, small additions from impure limestone.	Gray to black fine sandy loam to clay loam over gray or intensely mottled gray silty clay to clay.	Poor	[3] 0–2	Weak.
Lakeland	Thick beds of sands	Grayish-brown to pale-brown loamy fine sand over pale-yellow to light yellowish-brown loamy fine sand; finer textured material at depths of 30 inches to several feet.	Somewhat excessive.	0–30	Weak.

See footnotes at end of table, p. 24.

TABLE 3.—*Soil series of Dale County, Ala., grouped according to topographic position, and important characteristics of each*—Continued

SOILS ON UPLANDS—Continued

Soil series	Parent material [1]	Surface soil and subsoil [2]	Drainage	Slope range	Degree of profile development
				Percent	
Magnolia	Thick beds of acid sandy clays, and clays.	Grayish-brown to dark-brown fine sandy loam over reddish-brown to red sandy clay loam to sandy clay; mottled sandy clay or clay at depth of more than 40 inches.	Good	0–12	Strong.
Marlboro	Thick beds of sandy loams and sandy clays.	Gray to dark grayish-brown fine sandy loam over yellow to yellowish-brown sandy clay; mottled sandy clay at depth of more than 40 inches.	Good	0–5	Strong.
Norfolk	Beds of unconsolidated sands and sandy clays.	Gray to dark grayish-brown loamy sand to fine sandy loam over browish-yellow to yellowish-brown fine sandy clay loam; variable stratified sands to sandy clays at depth of more than 36 inches.	Good	0–12	Medium.
Plummer	Thick beds of sands	Gray to black loamy fine sand to fine sandy loam over gray to white sand; finer textured material at depth of more than 36 inches.	Poor	[4] 0–2	Weak.
Rains	Thick beds of sandy loams and sandy clay loams.	Gray to very dark gray loamy fine sand to fine sandy loam over sandy loam to sandy clay loam.	Poor	[4] 0–2	Medium.
Red Bay	Unconsolidated sands and sandy clays.	Brown to dark reddish-brown loamy sand to fine sandy loam over dark reddish-brown to red sandy clay loam; interstratified sands to sandy clays at depth of more than 60 inches.	Good	0–8	Strong.
Ruston	Thick beds of acid sandy clay loams that have layers of sand, loamy sand, and sandy clay in places.	Grayish-brown loamy sand to fine sandy loam over yellowish red sandy clay loam; variable stratified sands to sandy clays at depth of more than 36 inches.	Good	0–17	Medium.
Shubuta	Thinly bedded clays, sandy clays, and clay shales.	Gray to dark grayish-brown loamy sand to fine sandy loam over yellowish-red to red sandy clay loam that grades to mottled clay at depth of 11 inches.	Moderately good	2–12	Medium.
Tifton	Sandy clay marine deposits	Grayish-brown loamy sand to fine sandy loam over yellow to yellowish-brown sandy clay loam to sandy clay; reticulated sandy clay at depth of more than 36 inches.	Good	0–8	Strong.

SOILS ON STREAM TERRACES

Flint	Alluvium washed from sandy clays and clays.	Gray fine sandy loam over pale-brown to yellowish-red very firm clay loam to clay that is mottled at depth of 16 inches.	Moderately good to somewhat poor.	0–5	Medium.
Huckabee	Alluvium washed mainly from sands and loamy sands.	Gray to yellowish-brown loamy fine sand over pale-yellow to light-brown loamy sand; mottled sandy clay at depth of more than 36 inches.	Somewhat excessive.	0–5	Weak.
Izagora	Alluvium washed from sands, loamy sands, sandy loams, and sandy clay loams.	Gray to grayish-brown loamy fine sand to very fine sandy loam over yellowish-brown fine sandy loam to sandy clay loam that grades to mottled yellowish-brown sandy clay at depth of more than 18 inches.	Moderately good to somewhat poor.	0–5	Weak.

See footnotes at end of table, p. 24.

SOILS ON STREAM TERRACES—Continued

Soil series	Parent material [1]	Surface soil and subsoil [2]	Drainage	Slope range	Degree of profile development
Kalmia	Alluvium washed from loamy sands, sandy loams, and sandy clay loams.	Grayish-brown loamy fine sand to fine sandy loam over yellowish-brown fine sandy clay loam; mottled sandy clay at depth of more than 36 inches.	Good	0–5	Medium.
Leaf	Alluvium washed from sandy clays and clays.	Gray to dark grayish-brown very fine sandy loam to silt loam over mottled, red, very firm clay.	Poor	0–2	Medium.
Myatt	Alluvium washed from sandy loams, sandy clay loams, and sandy clays.	Light-gray to very dark grayish-brown fine sandy loam to silt loam over mottled, gray sandy clay loam to silty clay loam.	Poor	[3] 0–2	Medium.
SOILS ON FIRST BOTTOMS OR LOCAL ALLUVIUM					
Bibb	Alluvium washed from sandy loams and sandy clay loams.	Gray to dark grayish-brown loamy sand to silt loam over mottled, light-gray to grayish-brown silt loam to sandy clay loam.	Poor	0–2	Weak.
Hannahatchee	Alluvium washed mainly from sandy clay loams, sandy clays, and clays.	Dark grayish-brown to reddish-brown fine sandy loam to silty clay loam that grades to very dark grayish-brown to reddish-brown silty clay loam.	Moderately good to good.	0–5	Weak.
Iuka	Alluvium washed from sandy loams, sandy clay loams, and sandy clays.	Dark-gray to dark grayish-brown very fine sandy loam to silt loam that grades to yellowish-brown to brown silty clay loam.	Moderately good	0–5	Weak.

[1] All parent material originated in the Coastal Plain.
[2] Description is for profiles that have not been materially affected by accelerated erosion.
[3] Some areas slightly depressional.
[4] Some areas have 5 to 20 percent slopes.

TABLE 4.—*Approximate acreage, proportionate extent, and acreage in cropland, woodland, pasture, and idle land*

Soil	Area	Extent of county	Area in—			
			Cropland	Woodland	Pasture	Idle land
	Acres	*Percent*	*Acres*	*Acres*	*Acres*	*Acres*
Americus loamy fine sand:						
2 to 8 percent slopes	285	0. 1	205	58	13	9
8 to 17 percent slopes	94	(1)	34	54	--------	6
Bibb soils	3, 371	. 9	3	3, 354	6	8
Bibb soils, local alluvium phases	183	. 1	50	72	26	35
Boswell very fine sandy loam:						
Eroded very gently sloping moderately shallow phase	1, 555	. 4	387	921	21	226
Eroded gently sloping moderately shallow phase	1, 325	. 4	85	1, 118	13	109
Eroded sloping moderately shallow phase	716	. 2	47	631	3	35
Boswell sandy clay:						
Severely eroded very gently sloping moderately shallow phase	517	. 1	230	132	21	134
Severely eroded gently sloping moderately shallow phase	375	. 1	110	178	14	73
Bowie fine sandy loam:						
Eroded gently sloping phase	427	. 1	289	78	25	35
Eroded very gently sloping phase	629	. 2	515	34	5	75
Eroded sloping phase	143	(1)	93	30	15	5
Carnegie fine sandy loam, eroded very gently sloping phase	238	. 1	232	4	--------	2
Cuthbert fine sandy loam:						
Eroded sloping phase	3, 944	1. 1	61	3, 705	15	163
Eroded, 12 to 30 percent slopes	6, 250	1. 7	173	5, 920	27	130
Cuthbert fine sandy clay, severely eroded, 8 to 30 percent slopes	2, 280	. 6	384	1, 436	66	394

See footnote at end of table, p. 26.

TABLE 4.—*Approximate acreage, proportionate extent, and acreage in cropland, woodland, pasture, and idle land*—Con.

Soil	Area	Extent of county	Area in—			
			Cropland	Woodland	Pasture	Idle land
	Acres	*Percent*	*Acres*	*Acres*	*Acres*	*Acres*
Cuthbert, Boswell, and Eustis soils:						
Eroded sloping phases	251	(1)	23	192	--------	36
12 to 30 percent slopes	10, 550	3. 0	148	10, 174	68	160
Eustis loamy sand:						
0 to 5 percent slopes	11, 632	3. 2	4, 674	3, 582	165	3, 211
5 to 12 percent slopes	26, 835	7. 5	8, 044	13, 739	508	4, 544
12 to 25 percent slopes	6, 036	1. 7	256	5, 497	32	251
Faceville fine sandy loam:						
Eroded very gently sloping phase	316	. 1	251	50	--------	15
Level phase	596	. 2	544	2	44	6
Flint fine sandy loam:						
Level phase	1, 432	. 4	425	832	20	155
Eroded very gently sloping phase	307	. 1	42	230	2	33
Grady soils	276	. 1	61	40	35	140
Gullied land	6, 105	1. 7	683	3, 272	61	2, 089
Hannahatchee loam, local alluvium phase	366	. 1	303	19	21	23
Huckabee loamy fine sand, 0 to 5 percent slopes	11, 803	3. 3	2, 503	6, 861	209	2, 230
Iuka fine sandy loam	128	(1)	--------	128	--------	--------
Iuka soils, local alluvium phases	367	. 1	255	24	19	69
Izagora very fine sandy loam:						
Level phase	7, 651	2. 1	966	4, 888	460	1, 337
Very gently sloping phase	689	. 2	123	450	15	101
Kalmia fine sandy loam:						
Very gently sloping phase	509	. 1	287	118	33	71
Level phase	2, 961	. 8	1, 292	1, 160	97	412
Kalmia loamy fine sand, thick surface phase	222	. 1	146	45	--------	31
Lakeland loamy fine sand:						
0 to 5 percent slopes	26, 632	7. 4	13, 517	6, 851	580	5, 684
5 to 12 percent slopes	41, 840	11. 7	12, 493	21, 023	1, 092	7, 232
12 to 25 percent slopes	2, 999	. 8	185	2, 669	4	141
Lakeland and Cuthbert soils:						
Eroded gently sloping phases	236	. 1	51	148	11	26
12 to 30 percent slopes	22, 133	6. 2	145	21, 725	46	217
Leaf very fine sandy loam	1, 298	. 4	77	998	55	168
Magnolia fine sandy loam:						
Eroded very gently sloping phase	2, 141	. 6	1, 875	39	50	177
Level phase	2, 342	. 7	2, 316	4	18	4
Eroded gently sloping phase	301	. 1	204	47	1	49
Magnolia sandy clay loam:						
Severely eroded gently sloping phase	117	(1)	83	5	8	21
Severely eroded sloping phase	203	. 1	105	70	--------	28
Marlboro fine sandy loam:						
Level phase	342	. 1	318	10	2	12
Eroded very gently sloping phase	77	(1)	69	5	3	--------
Myatt very fine sandy loam	5, 673	1. 6	69	5, 274	117	213
Norfolk fine sandy loam:						
Eroded very gently sloping phase	2, 930	. 8	2, 321	220	133	256
Level phase	1, 715	. 5	1, 581	47	59	28
Very gently sloping phase	1, 068	. 3	836	99	39	94
Eroded gently sloping phase	1, 142	. 3	843	157	28	114
Eroded sloping phase	156	(1)	58	50	1	47
Norfolk loamy sand:						
Level thick surface phase	1, 700	. 5	1, 462	112	51	75
Very gently sloping thick surface phase	8, 467	2. 4	6, 267	1, 140	195	865
Gently sloping thick surface phase	2, 999	. 8	1, 817	621	129	432
Rains and Plummer soils:						
Level phases	1, 055	. 3	47	907	48	53
5 to 20 percent slopes	351	. 1	2	333	7	9
Red Bay fine sandy loam:						
Very gently sloping phase	518	. 1	515	1	2	--------
Level phase	923	. 3	859	39	22	3
Eroded very gently sloping phase	3, 860	1. 1	3, 510	103	109	138
Eroded gently sloping phase	1, 044	. 3	891	81	35	37
Red Bay and Magnolia fine sandy loams:						
Eroded very gently sloping phases	3, 041	. 8	2, 664	157	83	137
Eroded gently sloping phases	1, 859	. 5	1, 393	222	74	170
Eroded sloping phases	808	. 2	332	337	26	113
Red Bay and Magnolia sandy clay loams, severely eroded gently sloping phases	781	. 2	498	51	53	179

See footnote at end of table, p. 26.

TABLE 4.—*Approximate acreage, proportionate extent, and acreage in cropland, woodland, pasture, and idle land—Con.*

Soil	Area	Extent of county	Area in—			
			Cropland	Woodland	Pasture	Idle land
	Acres	*Percent*	*Acres*	*Acres*	*Acres*	*Acres*
Ruston fine sandy loam:						
Eroded very gently sloping phase	9, 752	2. 7	8, 390	682	171	509
Level phase	4, 041	1. 1	3, 933	46	21	41
Very gently sloping phase	1, 666	. 5	1, 269	302	28	67
Eroded gently sloping phase	5, 021	1. 4	3, 552	727	180	562
Eroded sloping phase	1, 284	. 4	641	428	49	166
Strongly sloping phase	224	. 1	23	172	6	23
Ruston loamy sand:						
Very gently sloping thick surface phase	3, 599	1. 0	2, 954	291	55	299
Gently sloping thick surface phase	1, 402	. 4	987	186	46	183
Sandy alluvial land, poorly drained	35, 990	10. 0	91	35, 615	141	143
Shubuta and Angie very fine sandy loams:						
Eroded very gently sloping phases	8, 120	2. 3	3, 693	3, 030	175	1, 222
Very gently sloping phases	766	. 2	345	370	7	44
Gently sloping phases	554	. 2	109	439	1	5
Eroded gently sloping phases	12, 867	3. 6	4, 049	6, 908	341	1, 569
Sloping phases	970	. 3	19	949	--------	2
Eroded sloping phases	7, 586	2. 1	1, 384	5, 483	94	625
Shubuta and Angie sandy clay loams:						
Severely eroded very gently sloping phases	584	. 2	161	208	5	210
Severely eroded gently sloping phases	2, 059	. 6	730	794	57	478
Tifton fine sandy loam:						
Eroded very gently sloping phase	1, 121	. 3	1, 015	41	16	49
Level phase	477	. 1	473	3	1	--------
Eroded gently sloping phase	354	. 1	281	35	8	30
Tifton sandy clay loam, severely eroded gently sloping phase	182	. 1	112	10	14	46
Areas of mapped soils	350, 734	97. 9	115, 538	189, 292	6, 556	39, 348
Urban, water areas, mines and pits	7, 666	2. 1				
Total area of county	358, 400	100. 0				

[1] Less than 0.1 percent of the total area.

Americus series

The Americus series consists of deep, somewhat excessively drained, medium acid to strongly acid sandy soils that occur on the uplands of the Coastal Plain. These soils have thick or moderately thick surface and subsurface layers of sands or loamy sands that have developed over beds of unconsolidated sands and sandy clays. They lie on very gentle to moderately steep slopes, mainly in the southern and southwestern parts of the county. The native vegetation was scrub oak, hickory, dogwood, and longleaf pine.

These soils are associated with the Red Bay and Eustis soils. They are similar to the Red Bay soils in color but are much sandier throughout the profile. They are similar to the Eustis soils in texture but have a darker brown surface soil and a redder subsoil.

The hazard of sheet erosion on these soils is slight to moderate. Partly because of the friable substratum, these soils are susceptible to gully erosion. Because they are infertile and somewhat excessively drained, the soils probably are better suited to deep-rooted perennial sod crops and trees than to crops that need frequent cultivation.

These soils have a small total acreage. Many areas that were formerly cultivated are now used for permanent pasture.

Americus loamy fine sand, 2 to 8 percent slopes (AaC).—The following describes a profile of this soil in a cultivated field:

0 to 12 inches, dark-brown (7.5YR 3/2), loose loamy fine sand; essentially structureless; medium acid; clear wavy boundary.

12 to 22 inches, dark-red (2.5YR 3/6), loose to very friable loamy fine sand; very weak, fine, crumb structure; medium acid; gradual wavy boundary.

22 to 82 inches, red (2.5YR 4/8), very friable loamy sand; very weak, fine structure; strongly acid.

82 to 120 inches, yellowish-red (5YR 5/8), loose loamy sand; essentially structureless; strongly acid.

120 to 150 inches +, yellowish-red, interstratified, firm fine sand and slightly compact, firm fine sandy clay; brittle and easily crushed.

The color of the surface layer varies from grayish brown to dark reddish brown. The subsoil is reddish brown to red. The depth of the sandy material over the finer sediments varies from 30 inches to several feet.

This soil is very permeable and has a low capacity for available moisture. It is low in organic matter and plant nutrients. It has a slight erosion hazard but is easy to work.

Use, suitability, and management.—Almost three-fourths of this soil is cultivated, and about one-fifth is in forest. The rest is in pasture or is idle. This soil should be managed intensively to conserve moisture and to build up organic matter and fertility. If used

for crops, large amounts of green manure and crop residues ought to be mixed into the soil to build up organic matter and improve the moisture content. In a suitable rotation a deep-rooted perennial sod crop should be grown at least 3 out of 4 years. It is better to apply moderate amounts of fertilizer frequently than to apply large amounts only once or twice during the growing season. Capability unit IIIs–1.

Americus loamy fine sand, 8 to 17 percent slopes (AaE).—Runoff generally is greater on this soil than it is on Americus loamy fine sand, 2 to 8 percent slopes, and the soil is more susceptible to erosion, especially gully erosion. A few gullies occur; some of these are quite deep.

Use, suitability, and management.—Most of the acreage of this soil is in woodland. Because the soil is moderately steep, low in fertility, droughty, and highly susceptible to erosion, it needs to be kept in permanent vegetation, especially suitable species of pine. Capability unit VIIs–1.

Bibb series

In this series are moderately deep, poorly drained, strongly acid soils. These soils are on general alluvium on the flood plains along the larger streams and creeks of the Coastal Plain. They also are on local alluvium on foot slopes, at the heads of and along small drainways, and in depressions. Their parent materials were washed from the Norfolk, Ruston, Red Bay, Shubuta, and other soils of the Coastal Plain. The Bibb soils occur with the moderately well drained Iuka soils. The native vegetation was mainly water oak, sweetgum, beech, white oak, and cypress. Nearly all the acreage of the Bibb soils is in woodland.

Bibb soils (0 to 2 percent slopes) (Ba).—The Bibb soils are likely to be flooded from time to time. The following profile, which has a silt loam surface soil, was observed in a forest.

½ to 0 inch, loose partly decomposed forest litter.
0 to 2 inches, dark grayish-brown (2.5Y 4/2), very friable silt loam; slightly sticky when wet; weak, fine, granular structure; clear wavy boundary; strongly acid.
2 to 17 inches, gray (10YR 5/1), friable silty clay faintly mottled with strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6); plastic when wet and hard when dry; moderate, medium, subangular blocky structure; gradual wavy boundary; strongly acid.
17 to 46 inches, intensely mottled gray (N 5/0) and yellowish-brown (10YR 5/6), firm sandy clay loam; plastic when wet and hard when dry; moderate, medium, subangular blocky structure; gradual wavy boundary; strongly acid.
46 to 52 inches +, highly mottled gray (N 5/0) and yellowish-brown (10YR 5/6), firm sandy clay; plastic when wet and hard when dry; massive (structureless); strongly acid.

The Bibb soils have a wide range in texture; the dominant types are silt loams and fine sandy loams. The 2- to 17-inch layer ranges from gray to dark grayish brown, and the 17- to 46-inch layer ranges from light gray to grayish brown. Mottling, which occurs in the lower layers, differs in intensity from place to place.

These soils are moderately low in fertility and contain a medium to small amount of organic matter. A high water table supplies much moisture during most of the year and excessive amounts during periods of prolonged rainfall.

Use, suitability, and management.—Almost all the acreage of these soils is in water-tolerant trees. Because the soils are wet and poorly drained, they are not suitable for cultivation.

The stream channels need deepening and straightening so that the water table will be lowered and part of the overflow eliminated. Fair to good pasture can be grown where simple drainage measures can remove excess surface water. If these soils are adequately drained and properly fertilized, they produce good pasture of white clover and Kentucky fescue. Capability unit Vw–2.

Bibb soils, local alluvium phases (0 to 2 percent slopes) (Bb).—These soils are on foot slopes and in depressions. They vary widely in texture, color, and consistence. Normally their surface soil is darker gray than that described for the series. Water stands on the lower lying areas for considerable periods, and seepage is common in areas adjacent to higher lying soils. Some of the acreage has an accumulation of material that was recently washed from surrounding higher lying areas. These soils generally have slightly better surface drainage than the Bibb soils on general alluvium. They occur in small patches that are normally 1 to 2 acres in size.

Use, suitability, and management.—About one-half the acreage is in woodland; the rest is about equally divided between cultivated crops and pasture. Because these soils are wet and poorly drained, they are not suitable for cultivation. Areas that are adequately drained and fertilized, can grow good stands of white clover and fescue. Capability unit Vw–2.

Boswell series

The soils in this series are moderately shallow, somewhat poorly drained, and medium acid to strongly acid. They occur over acid, clayey sediments on the uplands of the Coastal Plain, mainly in the northern part of the county. They are gently sloping to sloping, but the hazard of erosion is high. The native vegetation was mixed hardwoods and pines.

These soils occur among the Shubuta and Cuthbert soils. They have a redder, thinner, and more plastic subsoil than have the Shubuta soils, and their internal drainage is slower. Their subsoil is more strongly developed and redder than that of the Cuthbert soils.

More than one-half of the total acreage of these soils is in woodland. Much of the cleared acreage is being seeded to pasture.

Boswell very fine sandy loam, eroded very gently sloping moderately shallow phase (2 to 5 percent slopes) (BdB2).—This is the most extensive soil in the Boswell series. The following describes a profile in a forested area:

A_{00} 1¼ to ¾ inch, pine straw and leaves.
A_0 ¾ to 0 inch, partly decomposed and matted leaves and pine straw.
A_1 0 to ½ inch, very dark grayish-brown (10YR 3/2), friable very fine sandy loam; weak, fine, crumb structure; abrupt boundary; medium acid.
A_2 ½ to 4 inches, grayish-brown (10YR 5/2), friable very fine sandy loam; soft when dry; weak, fine, crumb structure; abrupt boundary; medium acid.
B_{21} 4 to 16 inches, dark-red (10R 3/6), firm clay; hard when dry and plastic when wet; strong, medium and very fine, angular blocky structure; abrupt boundary; strongly acid.

B_{22} 16 to 26 inches, red (2.5YR 4/6), firm clay mottled with light gray (10YR 7/2); hard when dry and slightly plastic when wet; weak, fine, platy structure; abrupt boundary; strongly acid.

B_{23} 26 to 37 inches, strong-brown (7.5YR 5/6), firm clay intensely mottled with light gray; hard when dry and slightly plastic when wet; moderate, fine, platy structure; structural aggregates, or peds, coated with strong-brown clay skins; clear boundary; strongly acid.

C_{11} 37 to 56 inches, light-gray (10YR 7/1), firm silty clay loam shales highly streaked with yellow (10YR 7/6); hard when dry and slightly plastic when wet; moderate, fine, platy structure; peds coated with reddish-brown clay skins; clear boundary; strongly acid.

C_{12} 56 to 60 inches, strong-brown (7.5YR 5/6), firm very fine sandy loam shales highly streaked with light brownish gray (10YR 6/2); hard when dry and slightly plastic when wet; moderate, fine, platy structure; clear boundary; strongly acid.

C_{13} 60 to 72 inches +, light-gray (10YR 7/1), firm sandy clay loam highly streaked with light brownish gray (10YR 6/2) and strong brown (7.5YR 5/6); hard when dry and slightly plastic when wet; moderate, fine, platy structure; strongly acid.

The surface soil varies from gray in undisturbed areas to strong brown or red where it is mixed with the upper subsoil. The thickness of the unmottled upper B layer ranges from a few inches to 18 inches. Also variable are the color, number, and distinctness of the mottles in the parent material. Included with this soil is a small acreage on slopes of 0 to 2 percent.

This soil is slowly permeable and has a low to moderate available water-holding capacity. It is low in organic matter and fertility and has fairly good tilth. The hazard of erosion is moderate.

Use, suitability, and management.—This soil is suited to most crops commonly grown in the county. Because it is thin, moderately likely to erode, and low in fertility, it is probably not very well suited to crops that need frequent cultivation. It is better suited to perennial sod crops grown for pasture and hay or for suitable species of pine.

This soil is moderately exacting in its management requirements but produces fair yields under good management. If the soil is cultivated, the management should provide for grass-based rotations, terraces, water disposal, and cultivation on the contour. Capability unit IIIe–3.

Boswell very fine sandy loam, eroded gently sloping moderately shallow phase (5 to 8 percent slopes) (BdC2).—This soil has slightly more rapid runoff than Boswell very fine sandy loam, eroded very gently sloping moderately shallow phase, where it occurs under cover similar to that of the eroded very gently sloping phase. The depth to the intensely mottled layer is normally less. Included with this soil is a small acreage that is only slightly eroded. These inclusions have a very fine sandy loam surface layer, 6 to 8 inches thick.

Use, suitability, and management.—Because of its more rapid runoff and slightly smaller capacity for available moisture, this soil is less suited to crops than the eroded very gently sloping phase, especially for crops that require cultivation. It is probably better suited to perennial sod crops grown for pasture and hay or to suitable species of pine. If cultivated, this soil needs very exacting management. Crop rotations should include perennial sod crops at least 3 out of 4 years. Capability unit IVe–3.

Boswell very fine sandy loam, eroded sloping moderately shallow phase (8 to 12 percent slopes) (BdD2).—This soil has more rapid runoff, less capacity for available moisture, and generally a thinner B horizon than has Boswell very fine sandy loam, eroded very gently sloping moderately shallow phase. Included are small scattered areas where accelerated erosion has removed the original sandy surface layer and exposed the red, firm clay subsoil. Because it is sloping and has rapid runoff, this soil is best suited to permanent vegetation, especially suitable species of pine. Capability unit VIe–2

Boswell sandy clay, severely eroded very gently sloping moderately shallow phase (2 to 5 percent slopes) (BcB3).—This soil has a reddish-brown or red, firm sandy clay surface layer. Accelerated erosion has removed most, or all, of the original sandy surface layer, and the present plow layer is a mixture of remnants of the original surface soil and the red, firm clay upper subsoil. A few moderately deep gullies occur in some places.

This soil has poor tilth and poor workability. It is low in fertility, organic matter, and capacity for available moisture. The hazard of erosion is high.

Use, suitability, and management.—This soil is poorly suited to cultivated crops. It is probably better suited to pasture and hay or suitable species of pine. If it must be used for crops, it requires intensive management. Crop rotations should be used that keep the soil in deep-rooted perennial sod crops at least 3 out of 4 years. Capability unit IVe–3.

Boswell sandy clay, severely eroded gently sloping moderately shallow phase (5 to 8 percent slopes) (BcC3).— This Soil is on slightly stronger slopes than Boswell sandy clay, severely eroded very gently sloping moderately shallow phase. Its runoff is slightly more rapid, and its capacity for available moisture is slightly less. Shallow and moderately deep gullies are more common. The hazard of erosion is high. Tilth and workability are poor. This soil is probably best suited to permanent vegetation, especially suitable species of pine. Capability unit VIe–2.

Bowie series

The soils in this series are moderately deep, moderately well drained to well drained, and medium acid. They occur in small very gently sloping to sloping areas throughout the county on the Coastal Plain upland. Their parent material is unconsolidated beds of acid sandy clay loam. The native vegetation was mainly stands of mixed hardwoods and pines.

These soils occur among the Norfolk, Tifton, Shubuta, and Lakeland soils. They differ from the Norfolk and Tifton soils in having a firm, slightly compact, mottled lower subsoil. They are less red and more friable in the upper subsoil than the Shubuta soils. The Bowie soils lack the 30 or more inches of loamy sand or loamy fine sand that is characteristic of the Lakeland soils. Most of the acreage has been cleared and is cultivated. The moderate capacity for available moisture and low fertility limit the Bowie soils to moderately intensive use.

Bowie fine sandy loam, eroded gently sloping phase (5 to 8 percent slopes) (BeC2).—The following describes a profile in a moist cultivated area:

A_p 0 to 6 inches, yellowish-brown (10YR 5/4), nearly loose fine sandy loam; weak, fine, crumb structure; gradual boundary; medium acid.

B_2 6 to 26 inches, brownish-yellow (10YR 6/6), friable fine sandy clay loam; weak, fine, subangular blocky structure; gradual boundary; medium acid.

B_3 26 to 36 inches, brownish-yellow (10YR 6/8), compact, friable sandy clay splotched with red (2.5YR 4/6); moderate, medium, subangular blocky structure; clear boundary; strongly acid.

C 36 to 54 inches +, parent material is reticulately mottled marine sediments, dominantly yellow and brown sandy clay loam; strongly acid.

The color of the A horizon ranges from grayish brown to yellowish brown, and that of the B horizon ranges from light yellowish brown to reddish yellow. The depth to the red splotches or mottlings ranges from 18 to 40 inches.

This soil is permeable in the surface soil and upper subsoil and slowly permeable in the lower subsoil. It has low fertility and a low content of organic matter. It is fairly easy to work and can be conserved by normal good management. Capability unit IVe–3.

Bowie fine sandy loam, eroded very gently sloping phase (2 to 5 percent slopes) (BeB2).—This soil has less rapid runoff than Bowie fine sandy loam, eroded gently sloping phase, and a smaller erosion hazard. Normally, it has a greater depth to the parent material and a higher capacity for available moisture. This soil is suited to about the same kind of crops as is the eroded gently sloping phase, but it requires less intensive management. Capability unit IIIe–3.

Bowie fine sandy loam, eroded sloping phase (8 to 12 percent slopes) (BeD2).—This soil is normally shallower and less well developed than Bowie fine sandy loam, eroded gently sloping phase. It has moderately rapid to rapid runoff and, therefore, a serious erosion hazard. Included with this soil is a small acreage of strongly sloping and steep soils. There are many shallow gullies. This soil is poorly suited to cultivated crops. Its best use is for permanent vegetation, especially pine trees. Capability unit VIe–2.

Carnegie series

In Dale County, the Carnegie series has a single deep, well-drained, medium acid soil. This soil has many small iron concretions on the surface and throughout the profile. The acreage is small and is in the southern part of the county on the Coastal Plain upland. The parent material is heavy sandy clay and clay. The native vegetation consisted mainly of pine with some scattered hickory and oak.

This soil occurs among the Tifton, Marlboro, and Magnolia soils. It has a redder subsoil than that of the Tifton soils. It contains more concretions than the Marlboro and Magnolia soils and is redder in the subsoil than the Marlboro soil.

Nearly all the acreage is cultivated. The Carnegie soil is well suited to intensive use because of its good drainage, favorable moisture relations, and gentle slopes.

Carnegie fine sandy loam, eroded very gently sloping phase (2 to 5 percent slopes) (CaB2).—The following describes a profile in a moist cultivated area:

A_p 0 to 8 inches, dark grayish-brown (10YR 4/2), very friable fine sandy loam; contains many brown to reddish-brown, small iron concretions; weak, fine, crumb structure; abrupt wavy boundary; medium acid to strongly acid.

B_{21} 8 to 24 inches, red (2.5YR 4/8), friable sandy clay; contains many small iron concretions; moderate, fine to medium, subangular blocky structure; gradual wavy boundary; strongly acid.

B_{22} 24 to 36 inches, red (2.5YR 5/8), friable sandy clay; contains many soft iron concretions; moderate, fine, subangular blocky structure; gradual wavy boundary; strongly acid.

B_3 36 to 56 inches, mottled red (2.5YR 5/8) and yellowish-brown (10YR 5/8), friable to firm, sandy clay that is slightly plastic when wet; contains many soft subangular concretions; moderate, medium, subangular blocky structure; strongly acid.

D 56 to 64 inches, mottled red (10YR 5/8), pale-yellow (5Y 8/4), and white (5Y 8/1), firm clay that is slightly plastic when wet; strongly acid.

The thickness of the surface layer ranges from 6 to 14 inches. Iron concretions are numerous or few and range from ⅛ inch to 2 inches in diameter. The color of the subsoil ranges from yellowish red to red.

This soil is permeable to a considerable depth and has a moderately high capacity for available moisture. It contains a low amount of organic matter and is low in fertility. It is easy to work and fairly easy to conserve. The tilth is good.

Use, suitability, and management.—This soil is suited to most crops grown in the county. If enough fertilizer is applied, high yields of cotton can be obtained. Cultivated crops grown on this soil should be in rotations that keep the soil in sod crops at least 1 out of 2 years or 2 out of 4 years. Except in the harvesting of peanuts, the concretions on and in this soil do not interfere with the operation of farm machinery. Capability unit IIe–2.

Cuthbert series

This series consists of shallow, moderately well drained to somewhat poorly drained, medium acid to strongly acid soils having a thin B horizon. These soils are fairly extensive. They occur on the Coastal Plain uplands, mostly in the northern part of the county, on beds of clays that have thin lenses of sand. The topography is generally sloping to steep. The native vegetation was mainly longleaf and shortleaf pines and included some oak, hickory, and dogwood.

Cuthbert soils are associated with the Ruston, Shubuta, and Boswell soils. They have a thinner and finer textured subsoil than have the Ruston soils and a thinner and more compact subsoil than the Shubuta soils. They are less sticky and plastic than the Boswell soils.

Much of the small acreage of Cuthbert soils that has been cleared is idle or in permanent pasture. Some of it has returned to forest. Because they are shallow and generally too steep for cultivated crops, these soils are best suited to permanent vegetation.

Cuthbert fine sandy loam, eroded sloping phase (8 to 12 percent slopes) (CcD2).—The following describes a profile in a moist woodland area:

A_0 ½ to 0 inch, thin layer of partially decomposed and matted leaves and pine straw.

A_1 0 to 7 inches, light brownish-gray (10YR 6/2), very friable very fine sandy loam; weak, fine, crumb structure; clear boundary; medium acid.

B 7 to 19 inches, yellowish-red (5YR 4/8), firm, compact clay; strong, medium and coarse, subangular blocky structure; hard when dry and slightly plastic when wet; diffuse boundary; strongly acid.

C 19 to 37 inches, yellowish-red (7.5YR 5/6), thinly bedded clays and sands intensely mottled and streaked with yellow (2.5Y 8/6), red (2.5YR 5/8), and light gray (5YR 7/1); some brown clay skins.

The A_1 horizon ranges in thickness from 2 to 18 inches. The A_2 horizon ranges from light brownish gray to pale yellow, and the B horizon, from yellowish red to red. The texture of the B horizon ranges from sandy clay to clay. Iron crusts, ¼ inch to 1 inch thick, occur in places. Included with this soil are some uneroded areas that have a surface soil of sandy loam or loamy sand.

This soil is slowly permeable and has a low capacity for available moisture. Tilth is fairly good, but the hazard of erosion is severe. The uses of this shallow, sloping soil are extremely limited. This soil should be kept in permanent vegetation, especially suitable species of pine. Capability unit VIIe–2.

Cuthbert fine sandy loam, eroded, 12 to 30 percent slopes (CcE2).—Because of its steep slopes and heavy, compact, shallow subsoil, this soil is highly susceptible to erosion. Runoff is rapid, infiltration is slow, and the capacity for available moisture is low. This soil is probably best suited to growing pine trees, but it needs good management to improve the stands. Capability unit VIIe–2.

Cuthbert fine sandy clay, severely eroded, 8 to 30 percent slopes (CbE3).—This soil has lost through erosion all or most of the original fine sandy loam surface soil, and the yellowish-red fine sandy clay subsoil is now exposed. Many shallow gullies occur in places. Runoff is very rapid, and the capacity for available moisture is very low. Tilth and workability are very poor. Almost all of this soil is in forest, which needs good management to improve the stands of pine. Capability unit VIIe–2.

Cuthbert, Boswell, and Eustis soils

In the northern part of the county the Cuthbert, Boswell, and Eustis soils occur in such an intricate, uneven pattern that it is impossible to map them separately. They are mapped together. A profile for a soil in each of these series is described under the respective series.

These soils are excessively drained to somewhat poorly drained. They are sloping to steep and occur on thick beds of sands, sandy clays, and clays. The texture of the surface soil ranges from the loamy sands of the Eustis soils to the sandy clay loams of the severely eroded Cuthbert and Boswell soils. The subsoil ranges from loamy sand to clay. These soils are generally finer textured than phases of the Lakeland and Cuthbert soils.

These soils have rapid runoff and slow to rapid internal drainage. Their capacity for available moisture is moderately low to low. They are medium acid to strongly acid. Where the soils have been cultivated, erosion is severe.

Most of the acreage of these soils has never been cleared. Much that was formerly cleared has returned to woodland, probably its best use.

Cuthbert, Boswell, and Eustis soils, eroded sloping phases (8 to 12 percent slopes) (CdD2).—These soils generally have a loamy sand to fine sandy loam surface soil, 3 to 7 inches thick. The subsoil is predominantly heavy sandy clay loam to clay and includes a small amount of loamy sand. Many shallow gullies occur in places. Runoff is moderately rapid, and the hazard of erosion is severe under clean cultivation. These soils are probably best suited to suitable species of pines. Good management is needed to improve the stands. Capability unit VIIe–2.

Cuthbert, Boswell, and Eustis soils, 12 to 30 percent slopes (CdE).—These soils are generally on steep, broken slopes adjoining streams. Except for small areas of sandy Eustis soils, they are mainly fine textured. Many small and a few moderately deep gullies have formed in places. Runoff is very rapid, and the hazard of erosion is severe. Most of the acreage is in woodland that has had small areas cleared for pasture. These soils probably are best suited to pine trees, but in most places the stands need improved management. Capability unit VIIe–2.

Eustis series

In this series are deep, somewhat excessively drained, medium acid to strongly acid sandy soils that are widely distributed on the Coastal Plain upland. These soils occur on slopes that range from 0 to 25 percent. They make up about 12 percent of the total area of the county. An extensive acreage occurs in the vicinity of Ozark and extends in a belt westward to Coffee County. These soils have developed from thick beds of acid marine sands underlain by finer sediments at depths of more than 30 inches. They have a subsoil of strong-brown to dark-brown loose loamy sand. The native vegetation consisted of a mixture of longleaf pine and scrub oak over a thick undercovering of wiregrass.

Eustis soils occur with the Ruston, Lakeland, and Americus soils. They are similar in color to the Ruston soils but contain more sand throughout the profile. They are more reddish than the Lakeland soils, which are yellow to pale brown. They have a less brown surface soil and a less red subsoil than have Americus soils, but they are similar to the Americus soils in texture.

About one-half of the acreage is woodland, and the rest is cleared. About two-thirds of the cleared acreage is cultivated, and one-third is about equally divided between idle land and pasture.

Eustis loamy sand, 0 to 5 percent slopes (EaB).—The following describes a profile in a cultivated area:

0 to 6 inches, strong-brown (7.5YR 5/6), loose loamy sand; essentially structureless; diffuse smooth boundary; medium acid.

6 to 42 inches, strong-brown (7.5YR 5/8), loose loamy sand; weak, fine, crumby structure; diffuse, smooth boundary; strongly acid.

42 to 72 inches, reddish-yellow (7.5YR 6/8), loose loamy sand; weak, fine, crumb structure; diffuse, smooth boundary; strongly acid.

72 to 84 inches +, red (2.5YR 4/8), friable sandy clay loam intensely mottled with light yellowish brown (2.5Y 6/4); moderate, medium, subangular blocky structure; strongly acid.

The surface soil ranges from strong brown to dark brown, and the subsoil, from yellowish brown to reddish yellow. The depth to the finer textured underlying material commonly ranges from about 30 to 120 inches.

This soil has slow runoff and rapid infiltration, and it is very permeable to a considerable depth. Its capacity for available moisture is low to very low. It is very low in fertility and organic matter. The tilth is good, and the soil is easy to work, but it is droughty and susceptible to severe leaching. Sheet erosion presents a slight hazard, and there are a few moderately deep gullies in places.

Use, suitability, and management.—About one-half of this fairly extensive soil is cultivated. It is fairly well suited to most of the cultivated crops grown in the county. It is probably better suited to peanuts than to cotton or corn. Bahiagrass is a suitable pasture plant. The liberal use of green-manure crops and the turning under of crop residues help to increase the content of organic matter and the capacity for available moisture. For highest yields, this soil needs frequent medium-sized applications of commercial fertilizer. Capability unit IIIs–1.

Eustis loamy sand, 5 to 12 percent slopes (EaC).—This is the most extensive soil in the Eustis series. It has slightly more rapid runoff than has Eustis loamy sand, 0 to 5 percent slopes, in places where the cover of the two soils is similar. Shallow gullies and a few deep ones occur in a few cultivated fields and in some idle areas that were formerly cultivated. This soil is droughty, is low in organic matter and in fertility, and has a low capacity for available moisture.

Use, suitability, and management.—About one-third of this soil is cultivated, but the soil is not so suitable for cultivation as Eustis loamy sand, 0 to 5 percent slopes. More intensive management is needed to maintain productivity. This soil is probably best suited to deep-rooted perennial sod crops that are grown for pasture and hay. Much of the formerly cleared acreage now supports fair to good stands of longleaf and loblolly pines. Capability unit IVs–1.

Eustis loamy sand, 12 to 25 percent slopes (EaE).—Much of this soil lies along drainways and streams. Some areas are wet and seepy. In places there are many shallow gullies and a few deep ones. Less than 10 percent of this mapping unit is eroded; nearly all of this eroded acreage was formerly cultivated. More than 90 percent of this soil is in woodland that consists of pine and scrub oak. Good management will improve the stands of pine. Capability unit VIIs–1.

Faceville series

This series consists of deep, well-drained, medium acid soils on the Coastal Plain uplands. The acreage of these soils, which totals about 900 acres, lies mostly in the southern part of the county. These soils occur on flats and very gentle slopes over thick beds of unconsolidated marine sediments, such as sands, sandy clays, and clays. The native vegetation was longleaf and loblolly pines with some oak, hickory, and dogwood. These soils have a dark grayish-brown fine sandy loam surface soil and a strong-brown to yellowish-red sandy clay loam to sandy clay subsoil.

Faceville soils occur with the Ruston, Marlboro, Tifton, and Magnolia soils. They have a darker and thinner surface soil than the Ruston soils and a finer textured subsoil. They are redder in the subsoil than the Ruston and Marlboro soils and less red in the subsoil than the Magnolia soils. They lack the fairly high content of iron concretions that occurs in the Tifton soils.

Most of the acreage is cultivated; a small area is in permanent pasture. Because these soils have good drainage, high capacity for available moisture, and mild slopes, they are suitable for intensive use.

Faceville fine sandy loam, eroded very gently sloping phase (2 to 5 percent slopes) (FaB2).—The following describes a profile in a cultivated area:

A_p 0 to 6 inches, dark grayish-brown (10YR 4/2), very friable fine sandy loam; weak, fine, crumb structure; abrupt wavy boundary; medium acid.

B_1 6 to 13 inches, strong-brown (7.5YR 5/6), very friable sandy clay loam; weak, fine, subangular blocky structure; gradual wavy boundary; strongly acid.

B_2 13 to 29 inches, strong-brown (7.5YR 5/6), friable sandy clay; moderate, fine, subangular blocky structure; gradual wavy boundary; strongly acid.

B_3 29 to 39 inches, strong-brown (7.5YR 5/8), friable sandy clay faintly mottled with red (2.5YR 4/6); moderate, fine, subangular blocky structure; clear wavy boundary; strongly acid.

D 39 to 47 inches +, red (2.5YR 4/6), firm clay distinctly mottled with yellowish brown (10YR 5/6); hard when dry; moderate, fine to medium, subangular blocky structure; strongly acid.

The surface soil ranges from dark gray to very dark grayish brown, and the subsoil, from strong brown to yellowish red. In some places the B_3 horizon is more strongly mottled than that described.

This soil has slow to medium runoff and a moderate erosion hazard. It is moderately permeable to a considerable depth and has a moderately high capacity for available moisture. It contains little organic matter and is low in fertility. Tilth is good, and the soil is easy to work and to conserve.

Use, suitability, and management.—Most of this soil is cultivated. It is well suited to cotton, corn, peanuts, truck crops, hay, and pasture. Partly because it responds very well to fertilizer, good to high yields can be obtained under good management. Capability unit IIe–2.

Faceville fine sandy loam, level phase (0 to 2 percent slopes) (FaA).—This soil normally has a surface soil that is 2 to 3 inches thicker than that of Faceville fine sandy loam, eroded very gently sloping phase. It has a moderately high capacity for available moisture, good tilth and workability, and few limitations to its use. It is highly productive. Nearly all of the total area of 600 acres is cultivated. This soil has a wide range of suitability for use and is very responsive to good management, especially fertilization. Capability unit I–2.

Flint series

In this series are moderately deep, moderately well drained to somewhat poorly drained, strongly acid soils. These soils occur on nearly level to very gently sloping stream terraces or benches, generally in positions that are too high to be flooded. They have developed on sediments washed from fine-textured soils of the Coastal Plain upland. The native vegetation was predominantly longleaf and loblolly pines, hickory, poplar, blackgum, and scrub oak.

These soils have a gray to grayish-brown fine sandy loam surface soil. The subsoil is pale-brown to yellowish-

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red, heavy, compact clay that is mottled in the lower part. The Flint soils occur with the more poorly drained Izagora and Leaf soils.

Somewhat less than one-half of the acreage of these soils is cleared and used for row crops and pasture. The soils are better suited to pasture and forest than to cultivated crops.

Flint fine sandy loam, level phase (0 to 2 percent slopes) (FbA).—The following describes a profile in a moist woodland area:

A_1 0 to 2 inches, grayish-brown (10YR 5/2), very friable fine sandy loam.

A_2 2 to 8 inches, gray (5YR 5/1), very friable fine sandy loam; weak, fine, granular structure; clear wavy boundary; strongly acid.

B_{21} 8 to 12 inches, yellowish-red (5YR 4/6), firm clay loam; weak, fine, subangular blocky structure; slightly hard when dry and slightly plastic when wet; clear wavy boundary; strongly acid.

B_{22} 12 to 18 inches, red (2.5YR 4/6), firm clay conspicuously mottled with yellowish-brown (10YR 5/8); strong, medium, subangular blocky structure; hard when dry and plastic when wet; clear boundary; strongly acid.

B_3 18 to 32 inches, yellowish-red (5YR 5/8), firm clay intensely mottled with yellow (2.5Y 7/6); strong, medium, subangular blocky structure; very hard when dry and very plastic when wet; clear boundary; strongly acid.

C 32 to 56 inches +, intensely mottled red (2.5YR 4/6), yellowish-brown (10YR 5/8), and light gray (2.5Y 7/2), very firm clay; massive (structureless); very hard when dry and very plastic when wet; strongly acid.

The surface soil ranges from gray to grayish brown, and the subsoil ranges from pale brown to yellowish red. Some small areas have a subsoil that is yellower than that described.

This soil is slowly permeable and has a moderate capacity for available moisture. It has low fertility and a low content of organic matter. Because of the heavy clay subsoil and impaired drainage, this soil is limited in its suitability for cultivated crops. It is, however, well suited to pasture grasses, clovers, and pines. Capability unit IIe-3.

Flint fine sandy loam, eroded very gently sloping phase (2 to 5 percent slopes) (FbB2).—This soil has more rapid runoff and generally a thinner surface soil than Flint fine sandy loam, level phase. The surface soil is generally 4 to 6 inches thick, and it contains less organic matter than that of the level phase. Included with this soil are areas where accelerated erosion has removed all of the original sandy surface soil and has exposed the yellowish-red subsoil.

This soil is low in fertility and has a moderate capacity for available moisture. It has a moderate erosion hazard. Tilth is not so favorable as it is on the level phase.

Use, suitability, and management.—Slightly more than half of this moderately extensive soil is in woodland. It is less well suited to cultivated crops than the level phase. It is well suited to most pasture grasses and legumes commonly grown in the county. Capability unit IIIe-3.

Grady series

In this series are moderately deep, poorly drained, medium acid to strongly acid soils. These soils are inextensive and occur in well-defined saucerlike depressions in the uplands of the Coastal Plain, mainly in the southern part of the county. They have developed from fine-textured materials that were washed from surrounding higher lying soils. The native vegetation was cypress, tupelo-gum, water oak, and willow.

Areas of these soils generally range in size from less than 1 to 3 or more acres. After periods of prolonged rainfall, water stands in these areas a few days to a few weeks. These soils have a gray to black fine sandy loam to clay loam surface soil. Their subsoil is gray to mottled gray, yellow, and brown silty clay, sandy clay, or clay. Grady soils occur with the well-drained Marlboro, Faceville, Magnolia, and Tifton soils.

Some acreage has been cleared, drained, and used for pasture, corn, and truck crops. Because of the high water table and the high content of organic matter, these soils are suitable for pasture and summer truck crops.

Grady soils (0 to 2 percent slopes) (Ga).—This mapping unit consists of Grady soils with surface soils that are mainly sandy loam, fine sandy loam, silty clay loam, and clay loam. The following describes a profile of fine sandy loam in a cultivated area:

A_p 0 to 8 inches, black (N 2/0), very friable fine sandy loam; contains a fairly high amount of organic matter; weak, fine, crumb structure; clear wavy boundary; strongly acid.

B_{21} 8 to 20 inches, gray (10YR 6/1), firm silty clay faintly mottled with strong brown (7.5YR 5/6); sticky when wet and hard when dry; moderate, very fine, subangular blocky structure; gradual wavy boundary; strongly acid.

B_{22} 20 to 29 inches, light-gray (10YR 7/1), firm sandy clay distinctly mottled with strong brown (7.5YR 5/6); sticky when wet and hard when dry; moderate, very fine, subangular blocky structure; clear wavy boundary; strongly acid.

C 29 to 42 inches, light-gray (10YR 7/1), firm sandy clay intensely mottled with bright red, brownish yellow, and strong brown; very hard when dry; massive (structureless); clear wavy boundary; strongly acid.

D_1 42 to 47 inches, light olive-brown (2.5Y 5/6), loose sand; contains lenses of heavy gray clay; single grain (structureless); clear wavy boundary; strongly acid.

D_2 47 to 52 inches +, gray (N 6/0), extremely firm clay; extremely hard when dry; massive (structureless); strongly acid.

The plow layer varies in color from medium gray to black, and the B horizon varies from almost solid gray to intensely mottled gray. The D horizon is missing in some places and occurs at variable depths in others. These soils are poorly drained to very poorly drained, the finer textured soils being the wettest.

These soils are very slowly permeable. They have poor drainage and a high water table. They have medium fertility and a medium content of organic matter. Their reaction is strongly acid. These soils are easy to work but difficult to drain. Their range of suitability for use is narrow, but, if the soils are adequately drained and otherwise well managed, they produce moderate to high yields. Capability unit IVw-2.

Gullied land

Gullied land occurs throughout the county in the upland of the Coastal Plain where accelerated erosion has destroyed, or partly destroyed, the soil profile. Most of this land is in areas that were formerly areas of Americus, Eustis, Lakeland, Shubuta, Boswell, Cuthbert, Lakeland and Cuthbert, Red Bay, and Ruston soils. Smaller tracts that were formerly areas of other soils of the Coastal Plain upland also occur.

Gullied land (2 to 25 percent slopes) (Gb).—This land has a network of deep gullies that generally are well cut into the parent material. In some places the profile has been completely destroyed except in small areas between the gullies. These small areas have profiles similar to those of adjacent severely eroded soils, and in a few places still retain some original surface soil. In some places no islands of soil occur, and the parent material is exposed over large areas. In other places the gullies have undercut very friable material and the surrounding soils have caved in.

In the more clayey areas, runoff is very rapid and internal drainage is slow; consequently, very little water enters the soil. Some areas of this land receive runoff from higher lying soils.

Use, suitability, and management.—Some of this land was formerly productive. Most of it, however, is on steep slopes, is sandy, or is otherwise unsuitable for cultivation. A very small acreage is now cultivated. Some of the land is in poor pasture and some is idle, but most of it has been abandoned and now supports a variable cover of pines, a few other kinds of trees, and shrubs. The land is so severely gullied and so difficult to improve that cultivation is not practicable. This land should be used for loblolly, slash, and other species of pine. Some kind of control is needed to prevent the gullies from spreading to adjacent soils. Capability unit VIIe–1.

Hannahatchee series

The soils of this series are deep, moderately well drained to well drained, and medium acid to strongly acid. They have a dark grayish-brown to reddish-brown fine sandy loam to silt loam surface soil and a very dark grayish-brown to reddish-brown silty clay loam subsoil. They occur at the base of upland slopes, in slight depressions, and along narrow upland drainways. The native vegetation was predominantly longleaf pine and oaks, hickory, and other hardwoods.

The Hannahatchee soils lack the definite horizons that characterize nearby upland soils. They occur with the Iuka soils. They are somewhat similar to the Iuka soils but are browner and have a wider textural range.

One soil of the Hannahatchee series is mapped in this county. Most of the acreage has been cleared and is used for cultivated crops. Because the soil has gentle slopes, a high water-holding capacity, and moderately high fertility, it can be used intensively. Especially well suited are corn, sugarcane, pasture grasses, and clover.

Hannahatchee loam, local alluvium phase (0 to 5 percent slopes) (Ha).—This soil occurs in scattered patches that range in size from 1 to 3 acres. The following describes a profile in a cultivated area:

0 to 13 inches, reddish-brown (5YR 4/4), friable loam; weak, fine, crumb structure; clear wavy boundary; medium acid.
13 to 18 inches, faintly mottled very dark grayish-brown (10YR 3/2) and dark-brown (7.5YR 4/4), friable silty clay loam; weak, fine, crumb structure; gradual wavy boundary; strongly acid.
18 to 29 inches, very dark grayish-brown (10YR 3/2), friable silty clay loam conspicuously mottled with dark brown (7.5YR 4/4); weak, fine, subangular blocky structure; strongly acid.
29 to 38 inches, light olive-brown (2.5Y 5/4), friable sandy clay loam conspicuously mottled with grayish brown; slightly sticky when wet; massive (structureless); strongly acid.
38 to 50 inches +, light olive-brown (2.5Y 5/6), friable sandy clay slightly mottled with brown; sticky when wet; massive (structureless); strongly acid.

The depth of the alluvial material ranges from 18 to more than 50 inches. Some areas are less intensely mottled in the deeper layers than indicated in the profile description.

This soil is permeable to a considerable depth and has a high capacity for available moisture. It has medium fertility and contains a medium amount of organic matter. It is easily worked and conserved under good management.

Use, suitability, and management.—This soil has a wide range of suitability for use. It is especially well suited to sugarcane, sorghum, corn, grasses, and clovers. If adequately fertilized, this soil normally produces high yields. Capability unit IIw–1.

Huckabee series

In this series are deep, somewhat excessively drained, medium acid soils. They have developed from coarse-textured very sandy materials that were washed from Lakeland, Eustis, Norfolk, and similar soils of the Coastal Plain. They occur chiefly on nearly level to very gently sloping stream terraces or benches adjacent to the larger streams. They are mainly associated with the Kalmia soils, from which they differ in being much sandier throughout the profile. The native vegetation was predominantly blackgum, sweetgum, willow oak, and pine.

One soil of the Huckabee series is mapped in this county. Many areas that were formerly cultivated are now being used for permanent pasture. Because of the low fertility and somewhat excessive drainage, the soil is probably better suited to deep-rooted perennial sod crops and trees than it is to cultivated crops.

Huckabee loamy fine sand, 0 to 5 percent slopes (HbB).—The following describes a profile in a cultivated area:

0 to 12 inches, grayish-brown (2.5Y 5/2), loose loamy fine sand; essentially structureless; clear wavy boundary; medium acid.
12 to 30 inches, light yellowish-brown (2.5Y 6/4), loose loamy fine sand; essentially structureless; diffuse smooth boundary; strongly acid.
30 to 72 inches, light brownish-gray (2.5Y 6/2), very friable loamy fine sand; structureless to weak, fine, crumb structure; strongly acid.
72 to 84 inches +, brownish-yellow (10YR 6/8), friable sandy clay intensely mottled with yellow and brown; moderate, medium, subangular blocky structure; strongly acid.

The depth of the sandy soil over the sandy clay material commonly ranges from 30 inches to several feet. The texture of the 12- to 30-inch layer and the 30- to 72-inch layer ranges from a light very fine sandy loam to a sand. The color of the surface layer varies from grayish brown to gray or dark gray, depending on its content of organic matter. A small acreage has a redder subsoil than indicated in the profile description. Included with this soil are small areas of Kalmia sand.

Huckabee loamy fine sand, 0 to 5 percent slopes, is very permeable to a considerable depth. Runoff is slow and infiltration is rapid. The capacity for available moisture is low to very low. This soil is very low in fertility and

contains a very small amount of organic matter. It is droughty and susceptible to severe leaching, but under good management it is easy to work and to conserve.

Use, suitability, and management.—This soil is fairly well suited to most of the cultivated crops grown in the county. Yields are moderate to low. Peanuts are probably better suited than cotton or corn. The liberal use of green-manure crops and the turning under of crop residues help to improve the content of organic matter and the moisture-holding capacity. Frequent moderate applications of commercial fertilizer are normally needed for best production. Bahiagrass is a well-suited pasture plant for this droughty soil. Capability unit IIs–2.

Iuka series

In this series are deep, moderately well drained, medium acid to strongly acid soils. These soils are on general alluvium on the flood plains along the larger streams, and on local alluvium at the base of upland slopes, in slight depressions, and along narrow upland drainways. The parent materials of these soils were washed from the Norfolk, Ruston, Bowie, Shubuta, and similar soils on the Coastal Plain. The native vegetation was mainly water oak, willow, beech, sweetgum, white oak, and other hardwoods. The local alluvium areas also contained longleaf and loblolly pines.

The soil on the general alluvium is associated with the Bibb soils, which are poorly drained, and with the Hannahatchie soils, which are browner than the Iuka soils.

Iuka soils occur in a small acreage that is widely distributed throughout the county. Slightly more than one-half is used for cultivated crops. Because Iuka soils are medium in fertility, contain a medium amount of organic matter, and have a high capacity for available moisture, they are suited to a wide variety of crops. They are especially well suited to corn, truck crops, and pasture.

Iuka fine sandy loam (0 to 2 percent slopes) (Ia).—This soil occurs on general alluvium along the larger streams and is likely to be flooded at times. It is in small tracts surrounded by poorly drained alluvial soils. The following describes a profile in a moist woodland:

½ to 0 inch, partly decomposed and matted leaves.
0 to 9 inches, dark grayish-brown (10YR 4/2), friable very fine sandy loam; weak, fine, crumb structure; clear wavy boundary; medium to strongly acid.
9 to 26 inches, yellowish-brown (10YR 5/4), friable fine sandy loam faintly mottled with shades of yellow, brown, and gray; moderate, fine, crumb structure; diffuse wavy boundary; strongly acid.
26 to 40 inches +, gray (10YR 6/1), friable fine sandy loam conspicuously mottled with yellow (2.5Y 7/6), dark brown (10YR 4/3), and reddish brown (5YR 5/4); moderate, fine, crumb structure; strongly acid.

The surface soil varies from dark gray to dark grayish brown. The mottles differ in their intensity and in the depth at which they occur. In some places thin layers of silt or silty clay occur below a depth of 9 inches. Included with this soil are areas of very fine sandy loam, loam, and silt loam.

This soil is permeable to a considerable depth and has a high capacity for available moisture. It contains a medium amount of organic matter and is medium in fertility. The tilth is good.

Use, suitability, and management.—This soil has a small total acreage; it has never been cleared. If it were cleared, it could be used for truck crops, corn, pasture grasses, and clovers. Capability unit IIw–1.

Iuka soils, local alluvium phases (0 to 5 percent slopes) (Ib).—This soil normally occurs in 1- to 3-acre patches. It is not likely to be flooded, but water stands in places for short periods after long rains. The following describes a profile in a moist cultivated area:

0 to 12 inches, very dark grayish-brown (2.5Y 3/2), very friable fine sandy loam; weak, fine, crumb structure; clear wavy boundary; medium acid.
12 to 27 inches, light olive-brown (2.5Y 5/6), very friable sandy loam with splotches of very dark gray; faintly mottled with brown at 12 inches; weak, fine, crumb structure; gradual wavy boundary; strongly acid.
27 to 35 inches, yellowish-brown (10YR 5/8), friable sandy clay loam; weak, fine, subangular blocky structure; gradual wavy boundary; strongly acid.
35 to 50 inches +, yellowish-brown (10YR 5/6), friable sandy clay loam; weak, fine, subangular blocky structure; strongly acid.

The surface soil ranges in texture from loamy sand to a fine sandy loam and in color from gray to very dark grayish brown. The depth of the recently deposited alluvial material ranges from 18 to more than 50 inches.

This soil is permeable to a considerable depth and has a high capacity for available moisture. It is medium in fertility and contains a medium amount of organic matter. It is easily worked and conserved under good management.

Use, suitability, and management.—This soil is well suited to a wide variety of crops. It is especially well suited to sugarcane and corn. If adequately fertilized, it will normally produce high yields. Capability unit IIw–1.

Izagora series

In this series are moderately deep, moderately well drained to somewhat poorly drained, medium acid soils. They have a gray to grayish-brown loamy fine sand to very fine sandy loam surface soil. The upper subsoil is fine sandy loam, and the lower subsoil is sandy clay loam. These soils lie on level to very gently sloping stream terraces. They developed from sandy alluvium that overlies clayey alluvium. The total area of about 8,000 acres is widely distributed throughout the county. The native vegetation was chiefly mixed stands of longleaf and loblolly pines.

Izagora soils occur among the Kalmia, Myatt, and Flint soils. They are less well drained than the Kalmia soils and have a finer textured lower subsoil. They are better drained and finer textured than the Myatt soils. They are more friable than the Flint soils and much yellower in the subsoil.

About two-thirds of the acreage remains in woodland. The cleared acreage is used for pasture and cultivated crops, mostly corn and truck crops. Because these soils have a high water table and are somewhat poorly drained, they are better suited to pasture grasses, clover, and pine trees than to row crops.

Izagora very fine sandy loam, level phase (0 to 2 percent slopes) (IcA).—This soil has a high water table that supplies plenty of moisture most of the time and excessive

moisture during periods of prolonged rainfall. The following describes a profile in a moist cultivated area:

A_p 0 to 7 inches, dark-gray (10YR 4/1), very friable very fine sandy loam; weak, fine, crumb structure; clear wavy boundary; medium acid.

A_2 7 to 10 inches, light olive-brown (2.5Y 5/4), very friable fine sandy loam; weak, fine, subangular blocky and crumb structure; clear wavy boundary; strongly acid.

B_2 10 to 18 inches, yellowish-brown (10YR 5/8), friable sandy clay loam; weak, medium, subangular blocky structure; clear wavy boundary; strongly acid.

B_g 18 to 28 inches, yellowish-brown (10YR 5/8), firm fine sandy clay conspicuously mottled with light red (2.5YR 6/8); moderate, fine, subangular blocky structure; hard when dry and plastic when wet; strongly acid.

C_g 28 to 40 inches +, yellowish-brown (10YR 5/8), friable sandy clay loam distinctly mottled with gray (10YR 6/1); weak, fine, subangular blocky structure; hard when dry and plastic when wet; strongly acid.

The texture of the A_2 horizon ranges from sandy loam to sandy clay loam. The depth to the firm sandy clay layer and the extent of mottlings vary from place to place. Included with this soil are areas of loamy sand, sandy loam, fine sandy loam, loam, and silt loam.

This soil is permeable in the upper subsoil and slowly permeable in the lower subsoil. It has low fertility and contains a low amount of organic matter. It is easily worked and conserved under good management.

Use, suitability, and management.—In places where the excess surface water can be removed by simple measures of artificial drainage, this soil can grow fair to good pasture. Capability unit IIIw–5.

Izagora very fine sandy loam, very gently sloping phase (2 to 5 percent slopes) (IcB).—This soil is moderately well drained. It is better suited to cultivated crops than the somewhat poorly drained Izagora very fine sandy loam, level phase. It is, however, probably better suited to permanent vegetation than to cultivated crops. Capability unit IIIw–5.

Kalmia series

In the Kalmia series are deep, well-drained, medium acid to strongly acid soils. These soils are on nearly level to very gently sloping stream terraces along the larger streams of the Coastal Plain. They have developed from sediments that were washed mainly from the Norfolk, Ruston, and other sandy soils of the Coastal Plain. The native vegetation was chiefly longleaf, shortleaf, and loblolly pines and included a few oaks, sweetgum, and blackgum.

Kalmia soils occur among the Izagora, Huckabee, Myatt, and Leaf soils. They are lighter colored than the Izagora soils and have a more friable and coarser textured lower B horizon. They differ from the Huckabee in having a subsoil of sandy clay loam rather than loamy sand. Kalmia soils are lighter colored and much better drained than the Myatt soils. They are much more friable throughout the profile than are the Leaf soils.

Two-thirds of the total area of about 3,600 acres is used for pasture and cultivated crops. These soils can be used moderately intensively because they have good drainage, moderately high water-holding capacity, and mild slopes.

Kalmia fine sandy loam, very gently sloping phase (2 to 5 percent slopes (KaB).—The following describes a profile in a moist cultivated area:

A_p 0 to 9 inches, grayish-brown (2.5Y 5/2), very friable fine sandy loam; weak, fine, crumb structure; gradual wavy boundary; medium acid.

B_1 9 to 14 inches, light olive-brown (2.5Y 5/4), very friable fine sandy loam; weak, fine, subangular blocky structure; clear wavy boundary; medium acid.

B_2 14 to 32 inches, yellowish-brown (10YR 5/8), friable sandy clay loam; weak, fine, subangular blocky structure; gradual wavy bounday; strongly acid.

D_1 32 to 43 inches, strong-brown (7.5YR 5/8), friable sandy clay; weak, fine, subangular blocky structure; gradual wavy boundary; strongly acid.

D_2 43 to 51 inches +, strong-brown (7.5YR 5/8), firm sandy clay with a few faint mottles of red (2.5YR 4/8); moderate, fine to medium, subangular blocky structure; strongly acid.

This soil is permeable and has a moderate capacity for available moisture. It is low in fertility and contains a small amount of organic matter. It has good tilth and is moderately easy to conserve. The hazard of erosion is moderate.

Use, suitability, and management.—Slightly more than one-half of this soil is used for cultivation. The soil is well suited to cotton, corn, peanuts, truck crops, hay, and pasture. Because it responds well to fertilizer, good to high yields can be obtained under good management. Capability unit IIe–1.

Kalmia fine sandy loam, level phase (0 to 2 percent slopes) (KaA).—This soil normally is 1 to 3 inches thicker in the surface soil than Kalmia fine sandy loam, very gently sloping phase, and it is higher in available capacity for moisture. In places the surface soil contains more organic matter and is darker colored than that of the more sloping soil. This soil has few limitations to use, and it does not need exacting management. It responds well to good management, especially fertilization. Capability unit I–1.

Kalmia loamy fine sand, thick surface phase (0 to 2 percent slopes) (Kb).—This soil differs from Kalmia fine sandy loam, very gently sloping phase, in that it has a gray to dark grayish-brown loamy sand surface soil that ranges from 18 to 30 inches in thickness. In characteristics it is intermediate between the very gently sloping phase and Huckabee loamy fine sand, 0 to 5 percent slopes. It is low in fertility and in content of organic matter.

Use, suitability, and management.—This soil is fairly well suited to most crops grown in the county. It is probably better suited to peanuts than it is to cotton or corn. Under good management, yields are low to moderate. Large additions of organic matter are needed to improve the water-holding capacity and to reduce leaching. Capability unit IIs–2.

Lakeland series

This series consists of deep, somewhat excessively drained, medium acid to strongly acid, sandy soils. These soils occur on the upland of the Coastal Plain on 0 to 25 percent slopes. They have developed from thick beds of acid marine sands that extend to depths of more than 30 inches, where finer sediments occur. They have a grayish-brown to pale-brown loose loamy sand surface soil and a pale-yellow to light yellowish-brown loamy sand subsoil. The native vegetation was predominantly longleaf pine with an undergrowth of scrub oak.

Lakeland soils occur mainly among the Norfolk, Bowie, Shubuta, and Eustis soils. They differ from the Nor-

folk, Bowie, and Shubuta soils in having loose sandy material to depths of more than 30 inches. They are yellower than the Eustis soils, which are strong brown.

The Lakeland soils are the most widely distributed and most extensive soils in the county. They make up 20 percent of the total area. About one-half the acreage is woodland, and one-half is cleared. About two-thirds of the cleared acreage is cultivated, and the rest is about equally divided between idle land and pasture.

Lakeland loamy fine sand, 0 to 5 percent slopes (LaB).—The following describes a profile in a cultivated area:

0 to 6 inches, grayish-brown (2.5Y 5/2), loose loamy fine sand; essentially structureless; clear wavy boundary; medium acid.

6 to 18 inches, light yellowish-brown (2.5Y 6/4), loose loamy fine sand; weak, fine, crumb structure; diffuse smooth boundary; strongly acid.

18 to 42 inches, light yellowish-brown (2.5Y 6/4), very friable loamy fine sand; weak, fine, crumb structure; diffuse smooth boundary; strongly acid.

42 to 54 inches +, yellow (10YR 7/8), firm fine sandy clay loam intensely mottled with yellowish red (5YR 5/8); moderate, medium, subangular blocky structure; strongly acid.

The surface soil ranges from grayish brown to pale brown. The next two layers below the surface soil are pale yellow to light yellowish brown. The fine sandy clay loam occurs at depths of 30 inches to several feet. The layer that in the foregoing profile extends from depths of 42 to 54 or more inches has a wide range in color, texture, and consistence.

This soil is highly permeable to a considerable depth. It has slow runoff and rapid infiltration. It is low to very low in fertility, in capacity for available moisture, and in content of organic matter. The tilth and workability are very good. This somewhat excessively drained soil is susceptible to severe leaching, but sheet erosion is only a slight hazard.

Use, suitability, and management.—About one-half of the total area of 26,632 acres is cultivated. This soil produces low to moderate yields of most crops commonly grown in the county. It is probably better suited to peanuts than it is to cotton or corn. Coastal bermudagrass and bahiagrass are suitable pasture plants for this droughty soil.

This soil needs liberal use of green manure and the plowing under of crop residues to raise the content of organic matter and to reduce leaching. It also needs frequent medium-sized applications of commercial fertilizer. Capability unit IIIs–1.

Lakeland loamy fine sand, 5 to 12 percent slopes (LaC).—In areas where the cover of this soil is similar to that of Lakeland loamy fine sand, 0 to 5 percent slopes, the runoff is slightly higher than that of the more nearly level soil. In places this soil has shallow gullies and a few deep ones.

Use, suitability, and management.—This is the most extensive soil in the Lakeland series. About one-third of it is cultivated. It is not so well suited to crops as the more nearly level phase and needs more intensive management. It is probably best suited to deep-rooted perennial sod crops grown for pasture and hay. It is also suitable for pine trees. Much of the acreage that was formerly cleared now has fair to good stands of longleaf and loblolly pines. Capability unit IVs–1.

Lakeland loamy fine sand, 12 to 25 percent slopes (LaE).—Formerly cultivated areas of this soil have many shallow gullies and a few deep ones. Most of the acreage is in woodland. This soil is best suited to trees because it is strongly sloping and moderately steep, excessively drained, susceptible to erosion, and very low in fertility. The pine stands could be improved by good management. Capability unit VIIs–1.

Lakeland and Cuthbert soils

These somewhat excessively drained to moderately well drained soils have developed from thick beds of sands and clays. They are on sloping to steep uplands on the Coastal Plain, mostly in the northern part of the county. Their texture varies from loamy sand to sandy clay and is coarser than that of the Cuthbert, Boswell, and Eustis soils. Profiles of Lakeland loamy fine sand, 0 to 5 percent slopes, and Cuthbert fine sandy loam, eroded sloping phase, are described under their respective series.

These soils are deep to shallow. Where they have been cultivated, erosion is severe. They are medium acid to strongly acid and have a moderately low to low capacity for available moisture.

Most of the acreage is used for woodland. The greater part of the formerly cleared areas has reverted to woods.

Lakeland and Cuthbert soils, eroded gently sloping phases (5 to 8 percent slopes) (LbC2).—These soils generally have a loamy sand or fine sandy loam surface soil, 3 to 7 inches thick. The texture of the subsoil ranges from loamy sand in the Lakeland soils to clay in the Cuthbert soils. Many shallow gullies occur. Runoff is moderate to moderately rapid; the hazard of erosion is moderately severe. These soils are best suited to permanent vegetation, especially suitable species of pine. Capability unit VIe–2.

Lakeland and Cuthbert soils, 12 to 30 percent slopes (LbE).—These soils generally occur on steep, broken slopes adjoining streams. They are shallow and have rapid runoff; consequently, the capacity for available moisture is low. Many shallow gullies and a few moderately deep ones occur.

Use, suitability, and management.—Most of the acreage is used for woodland; a small area has been cleared for pasture. Generally, pastures are poor and do not provide enough vegetation for protection against erosion. These soils probably are best suited to pine trees. Good management is needed to improve the stands. Capability unit VIIe–2.

Leaf series

In this series are poorly drained, medium acid to strongly acid soils that lie on low stream terraces on the Coastal Plain. They have developed from old alluvium that was washed from the Cuthbert, Boswell, Shubuta, and other loamy soils on the Coastal Plain upland. The native vegetation was predominantly water oak, white oak, hickory, sweetgum, and shortleaf pine.

Leaf soils occur among the Kalmia, Myatt, and Flint soils. They are similar to the Flint soils in texture and consistence but are less red and more poorly drained. They are finer textured throughout the profile than the Myatt soils. They differ from the well-drained Kalmia

soils in being poorly drained and in having a much finer textured, mottled subsoil.

One soil of the Leaf series is mapped in this county. Most of its small acreage is in forest, but some is used for corn, hay crops, and pasture. Because of the high water table and poor drainage, the soil is better suited to pasture grasses and clovers than to cultivated crops.

Leaf very fine sandy loam (0 to 2 percent slopes) (Lc).—The following describes a profile in a moist woodland:

A_1 0 to 2 inches, dark grayish-brown (10YR 4/2), very friable very fine sandy loam.

A_2 2 to 8 inches, gray (10YR 5/1), very friable very fine sandy loam; weak, fine, crumb structure; clear boundary; medium acid.

B_{21} 8 to 12 inches, light brownish-gray (10YR 6/2), very firm clay conspicuously mottled with strong brown (7.5YR 5/8) and gray (10YR 6/1); medium, subangular blocky structure; very hard when dry and very plastic when wet; clear wavy boundary; strongly acid.

B_{22} 12 to 24 inches, light-gray (10YR 7/1), very firm clay intensely mottled with strong brown (7.5YR 5/6); moderate, medium, subangular blocky structure; very plastic when wet and very hard when dry; gradual wavy boundary; strongly acid.

B_3 24 to 40 inches, gray (N 6/0), very firm clay intensely mottled with brownish yellow (10YR 6/8) and yellowish red (5YR 5/8); very plastic when wet and very hard when dry; massive (structureless); gradual wavy boundary; strongly acid.

C 40 to 64 inches +, gray (N 6/0), firm clay intensely mottled with brown and yellow; massive (structureless); very plastic when wet and very hard when dry; strongly acid.

The color of the A horizon ranges from gray to dark grayish brown. The depth to and extent of the intensely mottled layers vary from place to place. Included with this soil are areas of loam and silt loam.

This soil has a plastic clay subsoil that is slowly permeable to moisture and air. Fertility is low, and the content of organic matter is medium to low. A moderately high water table supplies plenty of moisture most of the time and too much moisture during periods of prolonged rainfall.

Use, suitability, and management.—This soil generally is not suitable for cultivation, but good yields of corn have been harvested on the better drained areas. By using simple measures of surface drainage and applying enough lime and fertilizer, good pasture can be obtained. Whiteclover, Kentucky fescue, and bahiagrass are well-suited pasture plants. These soils are excellent for the production of pine timber. Capability unit IVw–2.

Magnolia series

In this series are deep, well-drained, medium acid to strongly acid soils on the Coastal Plain upland. These soils have developed from thick beds of unconsolidated acid sandy clays and clays. They occur on nearly level to sloping topography, mostly in the southern part of the county. The native vegetation was mixed stands of white, red, and post oaks, hickory, dogwood, and longleaf and loblolly pines.

Magnolia soils occur among the Faceville, Marlboro, Ruston, and Red Bay soils. They are less friable in the subsoil than the Red Bay soils. Their subsoil is redder and more friable than that of the Ruston soils and redder than that of the Marlboro and Faceville soils.

Most of this productive soil is used to grow cultivated crops, but there are a few areas of forest, pasture, and idle land. Partly because of the good drainage and moderately high capacity for available moisture, these soils are suited to most crops and pasture plants grown in the area.

Magnolia fine sandy loam, eroded very gently sloping phase (2 to 5 percent slopes) (MaB2).—The following describes a profile in a moist cultivated area:

A_p 0 to 4 inches, dark-brown (10YR 4/3), very friable fine sandy loam; weak, fine, crumb structure; abrupt wavy boundary; medium acid.

B_1 4 to 8 inches, yellowish-red (5YR 4/6), very friable sandy clay loam; weak, fine, subangular blocky structure; gradual wavy boundary; strongly acid.

B_2 8 to 44 inches, red (2.5YR 4/6), firm sandy clay; moderate, fine to medium, subangular blocky structure; slightly sticky when wet; gradual wavy boundary; strongly acid.

C 44 to 52 inches +, red (2.5YR 4/8), firm clay intensely mottled with strong brown (7.5YR 5/6); moderate, fine to medium, subangular blocky structure; hard when dry and slightly sticky when wet; strongly acid.

In places where the original surface soil and the subsoil have been mixed, the color of the plow layer ranges from grayish brown to dark brown or reddish brown. The subsoil ranges from reddish brown to dark red. Where this soil occurs with the Ruston and Faceville soils, the yellowish-red B_1 horizon ranges in thickness from 2 to 15 inches. Included with this soil are areas of loamy sand and sandy clay loam.

This soil is permeable and has a moderately high capacity for available moisture. Fertility and organic-matter content are low, but tilth is good. The soil is moderately easy to work and to conserve. It is well suited to most crops commonly grown in the area. Moderate to high yields normally can be expected if adequate fertilizer is applied.

Use, suitability, and management.—If this soil is cultivated, it needs a complete water-disposal system that provides for terraces, vegetated waterways, and contour cultivation. Crops should be grown in a rotation that uses close-growing sod crops at least 2 years out of every 4. Capability unit IIe–2.

Magnolia fine sandy loam, level phase (0 to 2 percent slopes) (MaA).—This is the most extensive Magnolia soil in the county. It has a thicker, darker surface soil than that of Magnolia fine sandy loam, eroded very gently sloping phase. The surface soil is darker because it has a higher content of organic matter. This soil has good tilth and a moderately high capacity for available moisture. It is easy to work and to conserve. It is suitable for a wide range of crops and has few limitations to use. It is one of the most productive soils in the county. This soil responds well to good management, especially proper fertilization. Capability unit I–2.

Magnolia fine sandy loam, eroded gently sloping phase (5 to 8 percent slopes) (MaC2).—In this soil the depth to the intensely mottled clay layer is normally less than it is in Magnolia fine sandy loam, very gently sloping phase, and the capacity for available moisture is slightly less. Because of the rapid runoff, there is a hazard of further erosion. This soil is suited to about the same kinds of crops as is the very gently sloping phase but requires more intensive management to keep it highly productive. Capability unit IIIe–2.

Magnolia sandy clay loam, severely eroded gently sloping phase (5 to 8 percent slopes) (MbC3).—This soil

has been seriously damaged by erosion, which has removed most of the original fine sandy loam surface soil and, in places, has exposed the yellowish-red sandy loam subsoil. Many shallow gullies occur. This soil has more rapid runoff than Magnolia fine sandy loam, eroded very gently sloping phase, and considerably less capacity for available moisture. Tilth and workability are fair. This soil is probably better suited to permanent vegetation than it is to cultivated crops. If the soil is cultivated, intensive management is needed. Capability unit IVe–2.

Magnolia sandy clay loam, severely eroded sloping phase (8 to 12 percent slopes) (MbD3).—Erosion has removed all or part of the original fine sandy loam surface soil and, in places, has exposed the yellowish-red sandy clay loam subsoil. Many shallow gullies and a few moderately deep ones occur. Because of its unfavorable slopes and high rate of runoff, this soil has a severe hazard of further erosion.

Tilth and workability are poor, and the capacity for available moisture is low. This soil is not suitable for cultivated crops. Permanent vegetation, especially pine trees, is probably the best and safest use. Capability unit VIe–2.

Marlboro series

The Marlboro soils are deep, well drained, and medium acid. They have a gray to dark grayish-brown fine sandy loam surface soil and a yellowish-brown sandy clay subsoil. At a depth of about 42 inches is highly mottled brownish-yellow fine sandy clay. These soils have developed from thick beds of sandy loams and sandy clays on level to very gently sloping uplands of the Coastal Plain. Their small acreage is mainly in the southern part of the county. The native vegetation was predominantly longleaf and loblolly pines but included a few oak, hickory, dogwood, and shortleaf pines.

Marlboro soils are associated mainly with the Norfolk, Faceville, Magnolia, Carnegie, and Tifton soils. They have a thinner surface soil and a finer textured subsoil than have the Norfolk soils, and they lack the iron concretions that occur in Tifton and Carnegie soils. They have a yellower B horizon than that of the Magnolia and Faceville soils.

Almost all of the acreage has been cleared and is used for cultivated crops. Because these soils are gently sloping, moderately high in available water-holding capacity, and highly productive, they can be used intensively.

Marlboro fine sandy loam, level phase (0 to 2 percent slopes) (McA).—The following describes a profile in a moist cultivated area:

A_p 0 to 8 inches, dark grayish-brown (2.5Y 4/2), very friable fine sandy loam; weak, fine, crumb structure; abrupt smooth boundary; medium acid.

B_1 8 to 12 inches, yellowish-brown (10YR 5/6), friable fine sandy loam; weak, fine, subangular blocky structure; clear wavy boundary; medium acid.

B_2 12 to 42 inches, yellowish-brown (10YR 5/8), friable fine sandy clay; moderate, fine, subangular blocky structure; slightly sticky when moist; gradual wavy boundary; medium acid.

C 42 to 54 inches +, brownish-yellow (10YR 6/6), firm fine sandy clay intensely mottled with reddish brown (2.5YR 4/4) and gray (N 5/0); slightly hard when dry and slightly plastic when wet; moderate, fine, subangular blocky structure; medium acid.

The color of the A horizon ranges from gray to dark grayish brown, and that of the B horizon from deep yellow to yellowish brown. The consistence of the B horizon ranges from friable to firm. Where this soil is near the Tifton and Carnegie soils, it contains iron concretions.

This soil is permeable and has a moderately high capacity for available moisture. Although fertility and the content of organic matter are low, the soil is easy to work and to conserve.

Use, suitability, and management.—This nearly level soil has a wide range in use and is well suited to many crops, especially cotton. High yields can be obtained if enough fertilizer is applied. The soil responds well to additions of fertilizer and organic matter and to other good management. Capability unit I–2.

Marlboro fine sandy loam, eroded very gently sloping phase (2 to 5 percent slopes) (McB2).—This soil has a 3- to 7-inch surface layer, which is thinner and contains less organic matter than that of Marlboro fine sandy loam, level phase. This soil has less capacity for available moisture than the level phase. Because its runoff is more rapid, there is a hazard of further erosion. This soil is suited to about the same kinds of crops as the level phase, but it needs more intensive management. Capability unit IIe–2.

Myatt series

In this series are moderately deep, poorly drained, medium acid to strongly acid soils. These soils are on level to slightly depressed stream terraces along the larger streams. They were derived from alluvium that was washed from the Norfolk, Ruston, Red Bay, and other upland soils of the Coastal Plain. The native vegetation was chiefly water oak, maple, sweetgum, ash, cypress, and bay. Scattered pines were in the stands.

Myatt soils occur with Kalmia, Izagora, and Leaf soils. They are much more poorly drained than the Kalmia and Izagora soils. Their lower subsoil is coarser textured than that of the Izagora soils. They are coarser textured throughout the profile than are the Leaf soils.

The Myatt soil mapped in this county covers 5,700 acres; most of it is along the larger streams. Most of the acreage is uncleared, but a few scattered areas are used for pasture and cultivated crops.

Myatt very fine sandy loam (0 to 2 percent slopes) (Md).—The following describes a profile in a moist cultivated area:

A_1 0 to 3 inches, very dark grayish-brown (10YR 3/2), friable very fine sandy loam; weak, medium, granular structure; clear smooth boundary; medium acid to strongly acid.

A_2 3 to 10 inches, gray (10YR 6/1), friable very fine sandy loam; weak, fine, granular structure; clear smooth boundary; medium acid to strongly acid.

B 10 to 24 inches, gray (10YR 6/1), friable sandy clay loam distinctly mottled with grayish brown (10YR 5/2) and yellow (10YR 7/6); moderate, medium, subangular blocky structure; firm when dry and slightly sticky when wet; strongly acid.

C 24 to 36 inches +, intensely mottled gray (10YR 6/1) and yellowish-brown (10YR 5/6) friable sandy loam; weak, fine, granular structure; strongly acid.

The color of the A horizon ranges from light gray to very dark grayish brown. The texture of the B horizon ranges from sandy clay to silty clay loam In some places a weakly cemented fragipan layer occurs at depths of 18

to 24 inches. Included with this soil are areas of fine sandy loam and silt loam.

This poorly drained soil is slowly permeable. It has a high water table that provides enough moisture for plants most of the time and too much moisture during periods of prolonged rainfall. The soil is low to moderately low in fertility and contains a moderate amount of organic matter.

Use, suitability, and management.—This soil is not suited to cultivated crops, but, if simple measures of artificial drainage are used to remove the excess surface water, fair to good pastures can be established. If these drained areas are properly fertilized, whiteclover and Kentucky fescue are suitable pasture plants. Capability unit Vw–2.

Norfolk series

The Norfolk soils are deep, medium acid, well-drained sandy loams and loamy sands on the Coastal Plain upland. They have developed on interbedded sands and sandy clays in level to sloping areas. The native vegetation was predominantly mixed hardwoods and pines.

These soils occur among the Ruston, Tifton, Marlboro, Bowie, and Lakeland soils. Except for having a yellow subsoil, Norfolk soils are similar to the Ruston soils. Their subsoil is sandier than that of the Tifton soils, and it lacks the many iron concretions that occur in the Tifton subsoil. They are similar in color to the Marlboro soils but have a thicker surface soil and a sandier subsoil. Their lower subsoil does not have the red splotches that occur in the lower subsoil of the Bowie soils. Norfolk soils are less sandy throughout the profile than the Lakeland soils.

A large acreage of Norfolk soils is widely distributed throughout the county. About three-fourths of this acreage is used for cultivated crops. Because these soils have a moderate capacity for available moisture, good drainage, and excellent tilth and workability, they are well suited to most crops grown in the county. They are especially well suited to peanuts.

Norfolk fine sandy loam, eroded very gently sloping phase (2 to 5 percent slopes) (NaB2).—The following describes a profile in a moist cultivated area:

A_p 0 to 6 inches, dark grayish-brown (2.5Y 4/2), very friable fine sandy loam; weak, fine, crumb structure; clear wavy boundary; medium acid.

B_1 6 to 12 inches, yellowish-brown (10YR 5/6), friable fine sandy loam; weak, medium, subangular blocky structure; clear wavy boundary; medium acid.

B_2 12 to 38 inches, brownish-yellow (10YR 6/6) fine sandy clay loam; weak, medium, subangular blocky structure; gradual wavy boundary; strongly acid.

C 38 to 52 inches, brownish-yellow (10YR 6/6), friable fine sandy clay loam conspicuously mottled with strong brown (7.5YR 5/6) and gray (10YR 6/1); massive (structureless); strongly acid.

The color of the A horizon ranges from gray to dark grayish brown. The B horizon is yellow to yellowish brown.

This soil is permeable and has a moderate capacity for holding available moisture. It is low in fertility and in content of organic matter, but it has good tilth and is easy to work. The hazard of further erosion is moderate.

Use, suitability, and management.—The area of this soil in the county totals about 3,000 acres, most of which is cultivated. The soil is well suited to most cultivated crops and pasture plants. If cultivated crops are grown, management should provide for terraces, sod waterways, contour cultivation, and rotations in which close-growing sod crops are grown at least 2 years out of every 4. Capability unit IIe–1.

Norfolk fine sandy loam, level phase (0 to 2 percent slopes) (NaA).—This soil lies on smooth flats. It is thicker and normally darker in the surface soil than Norfolk fine sandy loam, eroded very gently sloping phase, and generally higher in capacity for available moisture. It responds well to good management, especially to additions of fertilizer and organic matter. Tilth is very good, and the soil is easy to work and to conserve. Nearly all of the total area of about 1,700 acres is cultivated. Slightly higher yields can be obtained on this level phase than on the eroded very gently sloping phase. Capability unit I–1.

Norfolk fine sandy loam, very gently sloping phase (2 to 5 percent slopes) (NaB).—This soil differs from Norfolk fine sandy loam, eroded very gently sloping phase, primarily in having a thicker surface soil and a greater water-holding capacity. It is suited to the same kinds of crops as the eroded very gently sloping phase and requires similar practices to conserve the soil. Slightly higher yields generally can be obtained on this soil. Capability unit IIe–1.

Norfolk fine sandy loam, eroded gently sloping phase (5 to 8 percent slopes) (NaC2).—This soil has a higher rate of runoff and a thinner solum than Norfolk fine sandy loam, eroded very gently sloping phase. Subsoil material is exposed in places, and a few shallow gullies have formed.

Use, suitability, and management.—Because this soil is more strongly sloping, somewhat shallower, and more likely to erode than the eroded very gently sloping phase, it is less well suited to cultivated crops and needs more intensive management. If it is used for row crops, it needs a complete system of water disposal that provides for terraces, sod waterways, and contour cultivation. The row crops ought to be grown in a rotation in which close-growing sod crops are on the soil 2 years out of 3. Capability unit IIIe–1.

Norfolk fine sandy loam, eroded sloping phase (8 to 12 percent slopes) (NaD2).—This soil has a considerably higher rate of runoff than Norfolk fine sandy loam, eroded very gently sloping phase, and normally a thinner solum. It has a lower capacity for available moisture and is much more susceptible to erosion.

Use, suitability, and management.—This soil is divided about equally into cropland, forest, and idle land. Very little is in pasture. Because of the unfavorable slopes, rapid runoff, and susceptibility to further erosion, the uses of this soil are limited, especially in growing cultivated crops. This soil can be kept fairly productive, however, if management provides for terraces, vegetated waterways, contour cultivation, and rotations in which close-growing crops are grown 3 years out of 4. Capability unit IVe–1.

Norfolk loamy sand, level thick surface phase (0 to 2 percent slopes) (NbA).—This soil occurs among Norfolk fine sandy loam, level phase, and the Lakeland soils. It differs from Norfolk fine sandy loam, level phase, in having 18 to 30 inches of loamy sand overlying clay loam. Its sandy layers do not extend so deep as those in the Lakeland soils, which have layers of loamy fine sand extending to depths of more than 30 inches.

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The following describes a profile in a moist cultivated area:

A_p 0 to 8 inches, grayish-brown (2.5Y 5/2), loose loamy sand; essentially structureless; clear wavy boundary; medium acid.

A_2 8 to 22 inches, light yellowish-brown (2.5Y 6/4), nearly loose loamy sand; very weak, fine, crumb structure; clear smooth boundary; medium acid.

B_2 22 to 42 inches, brownish-yellow (10YR 6/6), friable fine sandy clay loam; weak, medium, subangular blocky structure; gradual wavy boundary; strongly acid.

D 42 to 56 inches +, yellow (10YR 7/8), firm sandy clay intensely mottled with yellowish red (5YR 5/8); hard when dry; moderate, medium, subangular blocky structure; strongly acid.

This soil is lower in available water-holding capacity than Norfolk fine sandy loam, level phase, and is more susceptible to severe leaching. It is, however, easy to work and to conserve.

Use, suitability, and management.—About three-fourths of this soil has been cleared and is used for cotton, corn, peanuts, truck crops, and pasture. Low to moderate yields of most crops can be obtained under good management. The water-holding capacity can be increased by adding large amounts of organic matter. Capability unit IIs–2.

Norfolk loamy sand, very gently sloping thick surface phase (2 to 5 percent slopes) (NbB).—This soil has a large total acreage, most of which is cultivated. It has more rapid runoff than Norfolk loamy sand, level thick surface phase. It needs a complete system of water disposal that has terraces and vegetated waterways. Row crops should be grown in a rotation in which close-growing crops are on the soil at least one-half of the time. This soil is suitable for about the same uses as Norfolk loamy sand, level thick surface phase. Capability unit IIs–2.

Norfolk loamy sand, gently sloping thick surface phase (5 to 8 percent slopes) (NbC).—This soil has more rapid runoff and a lower capacity for available moisture than Norfolk loamy sand, level thick surface phase. The hazard of sheet erosion is moderate, and a complete system of water disposal is needed. This system should provide for terraces, vegetated waterways, contour cultivation, and a rotation in which close-growing sod crops are on the soil 2 years out of 3. Capability unit IIIs–1.

Rains and Plummer soils

Rains soils and Plummer soils are mapped together because they are similar and it is unnecessary to map them separately. They are poorly drained and have a high water table. They are medium acid to strongly acid. These soils have a gray to dark-gray or black loamy fine sand to fine sandy loam surface layer and a white to gray sand to sandy clay loam subsoil. The Rains soils generally are finer textured in the surface layer than the Plummer soils and are definitely finer textured in the subsoil.

These upland soils on the Coastal Plain generally occur in flat or nearly level areas that have many slight depressions interspersed. In a few places, they are on slopes of 5 to 20 percent. The soils have formed from thick beds of sandy clay loams, sandy loams, and sands. The native vegetation was predominantly cypress, sweetgum, blackgum, and longleaf and loblolly pines. The undergrowth was mainly gallberry, pitcher plant, and wiregrass.

Most of the acreage is wooded, but some areas have been cleared and are used mostly for pasture. Because of the high water table and poor drainage, these soils are not suitable for most cultivated crops. Good pastures, however, can be obtained under good management.

Rains and Plummer soils, level phases (0 to 2 percent slopes) (RaA).—The following describes a profile of Rains soil that has a very fine sandy loam surface soil:

A_p 0 to 8 inches, dark-gray (10YR 4/1), very friable very fine sandy loam; weak, fine, crumb structure; clear wavy boundary; medium acid.

B_1 8 to 12 inches, gray (10YR 6/1), loose loamy sand; almost structureless; clear wavy boundary; medium acid.

B_2 12 to 24 inches, light-gray (N 7/0), friable to firm sandy clay loam mottled with yellow (10YR 7/6); slightly plastic when wet; medium, fine, subangular blocky structure; strongly acid.

C 24 to 36 inches +, light-gray (10YR 7/1), friable to firm sandy clay intensely mottled with yellow (10YR 7/6); slightly plastic when wet; moderate, medium, subangular blocky structure.

The surface soil of the Rains soils in this mapping unit is generally very fine sandy loam, fine sandy loam, or loamy sand. Mottles vary from very few to common.

The following describes a profile of Plummer soil that has a fine sand surface soil:

0 to 5 inches, dark-gray (10YR 4/1), loose fine sand; medium acid to strongly acid.

5 to 38 inches, light-gray (2.5Y 7/2), loose fine sand; strongly acid.

38 to 54 inches +, light-gray (10YR 7/1), friable to firm sandy clay conspicuously mottled with brownish yellow; slightly plastic when wet; moderate, medium, subangular blocky structure; strongly acid.

The surface layer of the Plummer soils ranges from sand to a sandy loam in texture. In color it is dark gray or light gray, depending on the amount of organic matter it contains. The depth of the sand overlying the sandy clay layer ranges from 3 to 4 feet or more.

This group of undifferentiated soils is low in fertility and contains a medium to large amount of organic matter. The soils are easy to work but are difficult to drain.

Use, suitability, and management.—These soils are severely limited in their use. They are poorly suited to cultivated crops, but moderate to high yields of pasture can be obtained under good management. Capability unit Vw–2.

Rains and Plummer soils, 5 to 20 percent slopes (RaD).—These soils occur on slopes bordering streams or ponds. In some places they are in seepage areas that separate areas of better drained soils. They generally can be identified by a growth of gallberry, bay, and other water-tolerant plants. Because these soils have a high water table and are poorly drained and sandy, they are suitable only for growing timber, pasture grasses, and clovers. Capability unit Vw–2.

Red Bay series

In this series are deep, well-drained, medium acid to strongly acid sandy loams. These soils are on the Coastal Plain upland. They are nearly level to sloping and occur on beds of unconsolidated sands and sandy clays, mostly in the southern part of the county. They have a brown to dark reddish-brown loamy sand to fine sandy loam surface soil and a dark reddish-brown to red sandy clay loam

subsoil. The native vegetation was predominantly stands of mixed hardwoods and pines.

Red Bay soils occur among the Ruston, Magnolia, and Americus soils. They have a darker brown surface soil than that of the Magnolia and Ruston soils. Their subsoil is much finer textured than that of the Americus soils.

These soils cover an area of about 6,500 acres. More than two-thirds of the acreage is cropped, and the rest is in permanent pasture, idle land, woodland, and miscellaneous land. Partly because drainage is good and the water-holding capacity moderate, these soils give high yields under moderately intensive use.

Red Bay fine sandy loam, very gently sloping phase (2 to 5 percent slopes) (RbB).—The following describes a profile in a moist cultivated area:

A_p 0 to 9 inches, dark reddish-brown (5YR 3/2), very friable fine sandy loam; weak, fine, crumb structure; clear to abrupt boundary; medium acid.

B_1 9 to 14 inches, reddish-brown (5YR 4/4), very friable fine sandy loam; weak, fine and coarse, subangular blocky structure; diffuse boundary; strongly acid.

B_2 14 to 84 inches, red (2.5YR 4/6), very friable fine sandy clay loam; weak, coarse and medium, subangular blocky structure; gradual boundary; strongly acid.

D 84 to 120 inches +, yellowish-red (5YR 5/8), interstratified fine sand and slightly compact sandy clay; easily crushed; granular and weak, fine, subangular blocky structure; strongly acid.

The color of the A horizon ranges from dark reddish brown to brown; the B horizon is dark reddish brown to red. Included in this mapping unit are areas of loamy sand and sandy loam.

This soil is permeable and has a moderate capacity for available moisture. It is low in fertility and in content of organic matter. It is easy to work and moderately easy to conserve. Response to management is good.

Use, suitability, and management.—This very gently sloping soil has a wide range in use. It is well suited to many crops, especially cotton and peanuts. If enough fertilizer and organic matter are added and this soil is otherwise well managed, yields are normally high. Capability unit IIe–1.

Red Bay fine sandy loam, level phase (0 to 2 percent slopes) (RbA).—This soil is permeable and has a moderate capacity for available moisture. It covers nearly 1,000 acres, mostly in the southern part of the county. Nearly all of this acreage is in cultivated crops. The soil has very few limitations to its use and is highly productive. It responds well to good management, particularly additions of fertilizer and organic matter. Capability unit I–1.

Red Bay fine sandy loam, eroded very gently sloping phase (2 to 5 percent slopes) (RbB2).—This soil differs from Red Bay fine sandy loam, very gently sloping phase, primarily in having a thinner surface soil, which is 3 to 7 inches thick. Included in this mapping unit are small, severely eroded areas that have lost all, or almost all, of the original surface soil through erosion.

This soil has slightly lower water-holding capacity than the very gently sloping phase and contains slightly less organic matter. Its greater runoff is likely to cause further erosion. This soil, however, is suited to the same kinds of crops as the very gently sloping phase. Capability unit IIe–1.

Red Bay fine sandy loam, eroded gently sloping phase (5 to 8 percent slopes) (RbC2).—This soil has a 3- to 7-inch surface layer that is thinner and contains less organic matter than that of Red Bay fine sandy loam, eroded very gently sloping phase. Runoff is greater on this soil and causes a hazard of further erosion. Included in the mapping unit is a small acreage of severely eroded soil from which all, or almost all, of the original surface soil has been removed by erosion.

This soil is suited to about the same crops as the very gently sloping phase, but more intensive management is required to keep it productive. Capability unit IIIe–1.

Red Bay and Magnolia soils

In some very gently sloping to sloping areas throughout the county, these soils are mapped together because they occur in a pattern that makes it impractical to map them separately. They are deep, well drained, and friable. In their respective series descriptions they are described in detail. Some areas of these soils near Rocky Head have thin layers of rock rich in iron on the surface and in the profile. The soils in these areas have a finer textured and more compact subsoil than that described for the profiles of Red Bay soils and Magnolia soils.

Most of the acreage of these groups of soils is cultivated. If these soils are adequately fertilized and otherwise well managed, their yields are moderate to high.

Red Bay and Magnolia fine sandy loams, eroded very gently sloping phases (2 to 5 percent slopes) (RcB2).—These soils are permeable and have a moderately high capacity for available moisture. Fertility is medium to low, and organic matter is low. Tilth is good, and the soils are moderately easy to work and to conserve.

Use, suitability, and management.—These soils are well suited to cotton, corn, peanuts, and most other crops grown in the area. Yields are moderate to high if enough fertilizer is applied. The management should include use of a complete system of water disposal and of rotations in which sod crops are grown at least 2 years out of every 4. Capability unit IIe–2.

Red Bay and Magnolia fine sandy loams, eroded gently sloping phases (5 to 8 percent slopes) (RcC2).—The depth of these soils to the parent material is normally less than that of the Red Bay and Magnolia fine sandy loams, eroded very gently sloping phases; consequently, the capacity for available moisture is less. Runoff creates a moderately severe hazard of further erosion. These soils are suited to the same kinds of crop as the eroded very gently sloping phases but require more intensive management to keep them highly productive. Capability unit IIIe–2.

Red Bay and Magnolia fine sandy loams, eroded sloping phases (8 to 12 percent slopes) (RcD2).—These soils have moderately rapid runoff and moderately low capacity for available moisture. Many shallow gullies occur, and the soils are very likely to be further eroded and to have more and deeper gullies cut. Small areas that are eroded and strongly sloping or severely eroded and sloping are included with these soils. These soils are probably best suited to permanent vegetation. If used for cultivated crops, they should be kept in sod crops 3 years out of every 4. Capability unit IVe–2.

Red Bay and Magnolia sandy clay loams, severely eroded gently sloping phases (5 to 8 percent slopes) (RdC3).—Areas of these soils were once areas of fine sandy

loam, but accelerated erosion has removed all, or almost all, of the surface soil and has exposed the sandy clay loam subsoil. Many shallow gullies occur, and the soils have a high hazard of further erosion. Runoff is rapid, and the capacity for available moisture is moderately low. These soils have only fair tilth and fair workability. They are probably better suited to permanent vegetation than to cultivated crops. If these soils are cultivated, they need intensive management. Capability unit IVe–2.

Ruston series

In this series are deep, well-drained, medium acid soils. These soils have a large total acreage that is widely distributed throughout the county on the Coastal Plain upland. The largest acreage is in the southern part of the county. Ruston soils are level to strongly sloping and occur on thick beds of acid sandy clay loams. They have a grayish-brown loamy sand to fine sandy loam surface soil and a strong-brown to yellowish-red sandy clay loam subsoil. The native vegetation was predominantly longleaf and loblolly pines but included mixed stands of hardwoods.

Ruston soils are associated with the Norfolk, Red Bay, Magnolia, Eustis, Cuthbert, and Faceville soils. They are similar to the Norfolk soils in texture but are redder in the subsoil. They are grayer in the surface soil than the Red Bay soils but less red in the subsoil. Their subsoil is more friable, less red, and sandier than that of the Magnolia soils. The Ruston soils do not have a loamy sand subsoil like that of the Eustis soils. They are thicker and more friable in the subsoil than the Cuthbert soils. They differ from the Faceville soils in having a thicker and sandier subsoil.

More than three-fourths of the acreage is cropped, and the rest is in woodland or pasture or is idle land. These soils can be used moderately intensively because they have good drainage, moderate water-holding capacity, and generally mild slopes.

Ruston fine sandy loam, eroded very gently sloping phase (2 to 5 percent slopes) (ReB2).—The following describes a profile in a moist cultivated area:

A_p 0 to 6 inches, dark grayish-brown (10YR 4/2), very friable fine sandy loam; weak, fine, crumb structure; clear wavy boundary; medium acid.

B_1 6 to 16 inches, strong-brown (7.5YR 5/6), very friable sandy loam; weak, fine, crumb structure; gradual wavy boundary; medium acid.

B_2 16 to 35 inches, yellowish-red (5YR 5/6), friable sandy clay loam; weak, fine, subangular blocky structure; gradual wavy boundary; strongly acid.

B_3 35 to 45 inches +, yellowish-red (5YR 5/8), friable light sandy clay loam; moderate, fine, subangular blocky structure; strongly acid.

In some areas in the southern part of the county, red sandy clay occurs at depths of 24 to 36 inches. Included with this soil are some areas that have a surface soil of sandy loam or loamy sand.

This soil is permeable to roots, moisture, and air. Its capacity for available moisture is moderate. Areas that have the redder, firmer, finer textured subsoil are slightly higher in capacity for available moisture than the rest of this mapping unit and generally respond better to fertilizer.

Use, management, and suitability.—This soil has a wide range in use and is suited to many crops. It is especially well suited to peanuts. If enough fertilizer and organic matter are added, yields are normally good to high. Capability unit IIe–1.

Ruston fine sandy loam, level phase (0 to 2 percent slopes) (ReA).—Nearly all of this soil occurs in the southeastern part of the county in a belt that extends from the vicinity of Newton south to Houston County. Much of this soil has a red, firm sandy clay layer at depths of 24 to 36 inches.

This soil is permeable and has a moderately high capacity for available moisture. It is low in fertility and in organic matter and is medium acid. Tilth is good, and the soil is easy to conserve.

Use, suitability, and management.—This level soil has few limitations to use. It is well suited to cotton, corn, peanuts, hay, pasture, and truck crops. Because it is very responsive, moderate to high yields can be obtained under good management. Capability unit I–1.

Ruston fine sandy loam, very gently sloping phase (2 to 5 percent slopes) (ReB).—This soil has a thicker surface soil than Ruston fine sandy loam, eroded very gently sloping phase, and a slightly higher capacity for available moisture. Included are some areas of loamy sand that normally have a thicker surface soil than the rest of the mapping unit. This soil has about the same uses and management needs as those of the very gently sloping phase. Capability unit IIe–1.

Ruston fine sandy loam, eroded gently sloping phase (5 to 8 percent slopes) (ReC2).—This soil has more rapid runoff than Ruston fine sandy loam, eroded very gently sloping phase, and generally a thinner solum. Included are small areas that are severely eroded. These inclusions have an exposed subsoil, especially in the more sloping parts. In some places there are a few shallow gullies.

Use, suitability, and management.—This soil can be used for peanuts, cotton, corn, oats, pasture, and pine trees. It has moderately severe limitations, however, and needs exacting management. If cultivated crops are grown, the soil should have a complete system of water disposal, with terraces, vegetated waterways, and cultivation on the contour. Row crops should be grown in rotations that keep close-growing crops on the soil at least 2 years out of every 3. Capability unit IIIe–1.

Ruston fine sandy loam, eroded sloping phase (8 to 12 percent slopes) (ReD2).—This soil has a plow layer of yellowish-brown fine sandy loam that is generally 6 to 8 inches thick. It has more rapid runoff than Ruston fine sandy loam, eroded very gently sloping phase, and a lower capacity for available moisture.

Included are severely eroded areas where all, or nearly all, of the surface layer has been removed by accelerated erosion. In some places 3 or 4 inches of the subsoil also has been removed. Shallow gullies are common. In these severely eroded inclusions the parent material is 8 to 10 inches nearer the surface than the parent material of Ruston fine sandy loam, eroded very gently sloping phase.

Use, suitability, and management.—Because this soil is shallow and has rapid runoff and a low capacity for available moisture, it is poorly suited to crops that require frequent cultivation. It is better suited to deep-rooted perennial sod crops that are grown for pasture or hay. The best use, however, is probably for trees, especially suitable species of pine. Capability unit IVe–1.

Ruston fine sandy loam, strongly sloping phase (over 12 percent slopes) (ReE).—The profile of this soil varies more from place to place than does that of Ruston fine sandy loam, eroded very gently sloping phase. Generally, the depth to the parent material is shallower. Many shallow gullies and a few moderately deep ones occur. Partly because of the rapid runoff, this soil is susceptible to erosion. It is not suited to cultivated crops. Some of the acreage could be used for deep-rooted perennial sod crops that are grown for hay or pasture. Its best use, however, is probably for pine trees. Capability unit VIe–2.

Ruston loamy sand, very gently sloping thick surface phase (0 to 5 percent slopes) (RfB).—This soil occurs with phases of Ruston fine sandy loam and with Eustis soils and is intermediate in characteristics between these soils. It differs from the Ruston fine sandy loams in having a thicker sandy surface soil, which overlies finer textured material. Its surface soil, however, is thinner than the 30-inch surface soil of the Eustis soils.

The following describes a profile of this soil in a moist cultivated area:

A_p 0 to 7 inches, grayish-brown (10YR 5/2), loose loamy sand; essentially structureless; clear wavy boundary; medium acid.

A_{31} 7 to 16 inches, yellowish-red (5YR 5/6), loose loamy sand; weak, fine, crumb structure; clear wavy boundary; medium acid.

A_{32} 16 to 24 inches, reddish-yellow (5YR 6/8), loose loamy sand; weak, fine, crumb structure; clear smooth boundary; strongly acid.

B 24 to 64 inches, red (2.5 YR 4/8), faintly mottled with yellowish-brown (10YR 5/8), friable sandy clay loam; medium, fine, subangular blocky structure; strongly acid.

This soil is lower in fertility and in water-holding capacity than Ruston fine sandy loam, eroded very gently sloping phase, and is more susceptible to leaching. The thick, sandy surface soil, however, is less likely to be eroded than that of the fine sandy loam.

Use, suitability, and management.—Most of this soil, which totals 3,600 acres, is used for cultivated crops. Moderate yields of crops commonly grown in the area are obtained. The soil probably is better suited to peanuts than it is to cotton or corn. If it is cultivated, this soil needs a complete system of water disposal that uses terraces, vegetated waterways, contour cultivation, and a suitable crop rotation. The soil should be kept in close-growing crops at least 2 years out of every 4. Capability unit IIs–2.

Ruston loamy sand, gently sloping thick surface phase (5 to 8 percent slopes) (RfC).—This soil has more rapid runoff than Ruston loamy sand, very gently sloping thick surface phase, and is more susceptible to erosion, especially gully erosion. Included are some small areas that have slopes with gradients as steep as 12 percent. Because of the generally unfavorable slope, thick sandy surface soil, low capacity for available moisture, and low fertility, this soil probably is best suited to permanent vegetation. If it is used for cultivated crops, intensive management is needed. Capability unit IIIs–1.

Sandy alluvial land

This land consists of sediments that were recently washed from the Coastal Plain upland. It is poorly drained and lies along streams on narrow to moderately wide, nearly level flood plains. It occurs with the Bibb soils. Although predominantly sandy, this land has extremely wide variations in texture that depend on the source of the materials and on the condition of the stream when the material is deposited.

Sandy alluvial land, poorly drained (Sa).—This land generally has a surface layer, 4 to 8 inches thick, that is moderately well drained, dark grayish-brown to light yellowish-brown friable loamy sand, sandy loam, or silt loam. The surface layer overlies poorly drained mixed sandy, silty, and clayey materials that are highly mottled with gray, brown, and yellow. These mottles increase in number with increasing depth.

This sandy alluvium is likely to be flooded frequently, particularly after prolonged rainfall, but often after intense short rains. The water table ranges from on or just below the surface to a depth of 18 inches during wet periods, and from 2 to 4 feet during dry periods.

Use, suitability, and management.—About 98 percent of the total area of nearly 36,000 acres is woodland. The rest is cultivated, is in pasture, or is idle. The land is not suitable for cultivation, because of the poor drainage and the hazard of frequent flooding. Much of the acreage could support fair to good pasture if it were adequately drained. The woodland consists largely of bay, cypress, gum, and other water-tolerant trees, and there are a few scattered pines. Capability unit Vw–2.

Shubuta and Angie soils

The Shubuta soils and the Angie soils occur together in Dale County and, because they are somewhat similar, are mapped together.

Shubuta soils are deep, moderately well drained, and medium acid. They have a gray to dark grayish-brown loamy sand to fine sandy loam surface soil and a yellowish-red to reddish-brown, thin, heavy clay or sandy clay subsoil. These soils occur on very gently sloping uplands on the Coastal Plain, mostly in the northern part of the county. They have developed on thinly stratified beds of clays, sands, and clay shales.

The Shubuta soils resemble the Boswell soils in color but differ in having a thicker and more friable subsoil. Their subsoil is thicker and more uniformly colored than that of the Cuthbert soils and is much finer textured than that of the Lakeland soils. It contains less sand and is redder than that of the Bowie soils.

The Angie soils differ from the Shubuta soils in having yellow to yellowish-brown subsoil.

About two-thirds of the total area of 33,500 acres is in woodland. The cleared acreage is used for cultivated crops and pasture. Because of the hazard of erosion, generally unfavorable slopes, low fertility, and fair to poor tilth, these soils are only moderately suitable for cultivated crops. They generally are better suited to permanent pasture and woodland.

Shubuta and Angie very fine sandy loams, eroded very gently sloping phases (2 to 5 percent slopes) (ScB2).—The following describes a profile of the Shubuta soil in a moist cultivated area:

A_p 0 to 6 inches, grayish-brown (10YR 5/2), very friable very fine sandy loam; weak, fine, crumb structure; clear boundary; medium acid.

B_1 6 to 11 inches, yellowish-red (5YR 4/8), friable fine sandy clay loam; moderate, medium, subangular blocky structure; few brown clay skins on ped faces; clear wavy boundary; strongly acid.

B_2 11 to 24 inches, yellowish-red (5YR 4/6), firm fine sandy clay conspicuously mottled with light gray (10YR 7/2), and red (10R 4/8); strong, medium and fine, subangular blocky structure; few thin clay skins on ped faces; diffuse boundary; strongly acid.

B_3 24 to 50 inches, yellowish-red (5YR 4/6), firm sandy clay intensely mottled with gray (10YR 6/1), red (10R 4/8), and yellow (10YR 7/8); slightly sticky when wet and hard when dry; strong, medium, subangular blocky structure; clear boundary; strongly acid.

C 50 to 64 inches +, thin beds of sands, sandy clays, and clays, mostly yellowish red intensely mottled with gray; strongly acid.

In some places the A horizon is dark grayish brown. The thickness of the surface layer ranges from 6 to 24 inches. Some included areas that have not been eroded have a loamy sand or a sandy loam surface soil.

The following describes a profile of the Angie soil in a moist cultivated area:

A_p 0 to 4 inches, grayish-brown (10YR 5/2), very friable very fine sandy loam; weak, fine, crumb structure; clear wavy boundary; medium acid.

A_2 4 to 6 inches, light-gray (2.5Y 7/2), very friable very fine sandy loam; weak, fine, crumb structure; clear smooth boundary; medium acid.

B 6 to 24 inches, brownish-yellow (10YR 6/6), firm sandy clay; slightly plastic when wet and hard when dry; moderate, medium, subangular blocky structure; clear wavy boundary; strongly acid.

C 24 to 56 inches +, yellowish-brown very firm clay conspicuously mottled with yellowish red (5YR 4/6); plastic when wet and hard when dry; moderate, medium, subangular blocky structure; strongly acid.

The color of the B horizon ranges from yellow to yellowish brown. Some included areas that have not been eroded have a loamy sand or a sandy loam surface soil that ranges from light gray to dark grayish brown.

The Shubuta and Angie soils are slowly permeable and have a medium capacity for available moisture. They are fairly easy to work and to conserve under good management. They are low in fertility and in content of organic matter.

Use, suitability, and management.—These soils are moderately limited in their use. They are suited to cotton, corn, and peanuts, and they produce fair yields of these crops under good management. They are well suited to pasture grasses, clovers, and pine trees. Capability unit IIIe–3.

Shubuta and Angie very fine sandy loams, very gently sloping phases (2 to 5 percent slopes) (ScB).—These soils have a 7- to 12-inch surface soil, which is thicker than the ones described for Shubuta and Angie very fine sandy loams, eroded very gently sloping phases. Their content of organic matter and capacity for available moisture are higher than those of the eroded very gently sloping phases. These soils, however, are suited to the same kinds of crops as the eroded soils and need similar management. Capability unit IIe–3.

Shubuta and Angie very fine sandy loams, gently sloping phases (5 to 8 percent slopes) (ScC).—These soils have a 7- to 12-inch surface soil that is thicker than the surface soil of Shubuta and Angie very fine sandy loams, eroded very gently sloping phases.

If the soils are used for cultivated crops, the somewhat unfavorable slope and the slow permeability of the subsoil create an erosion hazard. Most of the acreage is in woodland and is uneroded. These soils are fairly well suited to most cultivated crops, but their best use is probably for permanent vegetation, particularly pine trees. Capability unit IIIe–3.

Shubuta and Angie very fine sandy loams, eroded gently sloping phases (5 to 8 percent slopes) (ScC2).—These soils have more rapid runoff, slightly less capacity for available moisture, and, in most places, a thinner surface soil than have the Shubuta and Angie very fine sandy loams, eroded very gently sloping phases. In some places a few shallow gullies occur. The soils are probably best suited to permanent vegetation, especially suitable species of pine. If they are cultivated, they need intensive management. Capability unit IVe–3.

Shubuta and Angie very fine sandy loams, sloping phases (8 to 12 percent slopes) (ScD).—These soils have rapid runoff and moderately low capacity for available moisture. In most places their subsoil is thinner than that of Shubuta and Angie very fine sandy loams, eroded very gently sloping phases. Because of the serious hazard of erosion, probably it is best to keep these soils in permanent vegetation, especially suitable species of pine. Capability unit VIe–2.

Shubuta and Angie very fine sandy loams, eroded sloping phases (8 to 12 percent slopes) (ScD2).—These soils have rapid runoff, low capacity for available moisture, and, in most places, a very thin subsoil. Because the soils are sloping, shallow, and very erodible, they should be kept in permanent vegetation, especially suitable species of pine. Capability unit VIe–2.

Shubuta and Angie sandy clay loams, severely eroded very gently sloping phases (2 to 5 percent slopes) (SbB3).—These soils, depending on their location, have lost all, or almost all, of their original sandy surface layer through accelerated erosion. The present plow layer—a yellowish-red sandy clay loam—is a mixture of remnants of the original sandy surface soil and the original upper subsoil of yellowish-red sandy clay loam. A few moderately deep gullies occur.

These soils have poor tilth and are difficult to work. They are low in fertility and contain little organic matter. The capacity for available moisture is low, and the soils are very susceptible to further erosion. They are poorly suited to cultivation and need intensive management if they are cultivated. Capability unit IVe–3.

Shubuta and Angie sandy clay loams, severely eroded gently sloping phases (5 to 8 percent slopes) (SbC3).—These soils have lost all, or nearly all, of their original sandy surface soil through accelerated erosion. The present plow layer—a yellowish-red sandy clay loam—is a mixture of remnants of the original sandy surface soil and the original upper subsoil of yellowish-red sandy clay loam. A few moderately deep gullies occur.

These soils have poor tilth and are difficult to work. They are low in fertility and contain little organic matter. The capacity for available moisture is low, and the soils are extremely susceptible to further erosion. They should be kept in permanent vegetation, especially suitable species of pine. Capability unit VIe–2.

Tifton series

In this series are moderately deep to deep, well-drained, medium acid soils. These soils have a dark-gray to dark

grayish-brown fine sandy loam and loamy sand surface soil and a brownish-yellow to yellowish-brown fine sandy clay loam subsoil. Many small concretions of iron are on the surface and throughout the profile. These inextensive soils have developed from marine deposits of sandy clay on the level to gently sloping upland of the Coastal Plain, mainly in the southern part of the county. Longleaf pine was the predominant native vegetation, and there were a few oaks and hickories and a heavy undergrowth of wiregrass.

These soils are mainly associated with the Norfolk, Bowie, Carnegie, Faceville, and Marlboro soils. They have a darker and thinner surface soil than the Norfolk and Bowie soils and a finer textured subsoil. They lack the firm, compact, mottled lower subsoil of the Bowie soils. Tifton soils are considerably less brown or red than the Carnegie and Faceville soils and contain more iron concretions than the Marlboro soils.

Most of the acreage has been cleared and is used for cultivated crops. These soils can be used intensively because they have gentle slopes, high water-holding capacity, and medium to low fertility.

Tifton fine sandy loam, eroded very gently sloping phase (2 to 5 percent slopes) (TaB2).—The following describes a profile in a moist cultivated area:

A_p 0 to 4 inches, dark grayish-brown (10YR 4/2), very friable fine sandy loam; many small iron concretions; moderate, fine and medium, crumb structure; clear smooth boundary; medium acid.

B_1 4 to 9 inches, light yellowish-brown (10YR 6/4), very friable fine sandy clay loam; many iron concretions; moderate, fine and medium, subangular blocky structure; clear wavy boundary; strongly acid.

B_2 9 to 27 inches, brownish-yellow (10YR 6/8), very friable fine sandy clay; many iron concretions; fine to medium, subangular blocky structure; gradual wavy boundary; strongly acid.

B_3 27 to 45 inches, brownish-yellow (10YR 6/8), very friable fine sandy clay distinctly mottled or stained with red (2.5YR 4/6); many small iron concretions; moderate, medium, subangular blocky structure; gradual wavy boundary; strongly acid.

C 45 to 54 inches +, brownish-yellow (10YR 6/8), friable to firm fine sandy clay intensely mottled with red (2.5YR 4/6), yellowish red (5YR 4/8), and pale olive (5Y 6/4); many soft concretions; moderate, medium, subangular blocky structure; strongly acid.

The B horizon ranges from brownish yellow to yellowish brown in color, and from sandy clay loam to fine sandy clay in texture. The amount of concretions on the surface and in the profile varies greatly from place to place. Included with this soil are uneroded areas of sandy loam and loamy sand.

This soil is permeable to a considerable depth and has a moderately high capacity for available moisture. Under good management it is moderately easy to conserve.

Use, suitability, and management.—This very gently sloping soil has a wide range in use and is well suited to many different crops. It is especially well suited to cotton. If enough fertilizer and organic matter are added and the soil is otherwise well managed, it responds well and moderate to high yields normally can be obtained. Capability unit IIe–2.

Tifton fine sandy loam, level phase (0 to 2 percent slopes) (TaA).—This soil has a 3- to 6-inch surface soil that is thicker, in most places, than the surface soil described for Tifton fine sandy loam, eroded very gently sloping phase. The soil is highly productive and has a high capacity for available moisture. Tilth is good, and there are few limitations to use. This soil has a total area of 477 acres, nearly all of which is cultivated. It responds very well to good management, especially fertilization. Capability unit I–2.

Tifton fine sandy loam, eroded gently sloping phase (5 to 8 percent slopes) (TaC2).—This soil is generally shallower to the intensely mottled parent material than is Tifton fine sandy loam, eroded very gently sloping phase. It has more rapid runoff that creates a hazard of further erosion. This soil is suited to about the same crops as the eroded very gently sloping phase but requires more intensive management to keep it highly productive. Capability unit IIIe–2.

Tifton sandy clay loam, severely eroded gently sloping phase (5 to 8 percent slopes) (TbC3).—This soil has been seriously damaged by accelerated erosion, which has removed all, or nearly all, of the original fine sandy loam surface soil and has exposed the yellowish-brown sandy clay loam subsoil. Many shallow gullies occur. The soil has more rapid runoff than Tifton fine sandy loam, eroded very gently sloping phase, and less capacity for available moisture. The hazard of further erosion is high, and tilth and workability are poor. This soil is best suited to permanent vegetation. If it is cultivated, it needs intensive management. Capability unit IVe–2.

Formation, Classification, and Morphology

Soil is a product that results from the interaction of climate, living organisms, parent material, relief, and time. In any location the nature of the soil depends on the degree of influence that each of these five factors had on the formation of the soil, but the relative importance of each factor differs from place to place. In one place certain of these factors are more important; in other places other factors are more important. In a few places, one factor dominates over the others and fixes most of the properties of the soil that is formed. For example, parent material generally dominates in the formation of soils derived from pure quartz sand. Such soils normally have faint horizons, but distinct horizons can be formed under certain types of vegetation if the relief is low and flat and the water table is high.[3]

Factors of Soil Formation in Dale County

CLIMATE: Dale County has a humid, warm-temperate, continental climate that is characteristic of southeastern United States (see table 6). This climate has been an active factor in soil development, and the soils formed are strongly weathered, leached, acid, and infertile. Little vegetable matter has accumulated on these soils.

LIVING ORGANISMS: Dale County was originally covered by a dense forest. In the swampy areas were cypress, magnolia, bamboo, ash, various other hardwoods, and slash, loblolly, and spruce pines. The sandy ridges and

[3] SIMONSON, ROY W. GENESIS, MORPHOLOGY, AND CLASSIFICATION OF SOILS. Soil Survey, Tunica County, Miss. U.S. Dept. Agr., pp. 61–79. 1956.

hills had mixed stands of longleaf, shortleaf, and loblolly pines, as well as some dogwood and water and blackjack oaks, some of which were scrubby trees. The finer textured soils of the upland were covered with mixed stands of hardwoods and slash, loblolly, and shortleaf pines.

Only small amounts of vegetable matter have accumulated in Dale County because the climate has not favored its accumulation. This scarcity of vegetable matter is reflected in the light color of the soils. A layer of vegetable mold does occur in the areas that still support a forest growth, but this layer is very thin, and little organic matter has been mixed with the soil.

As agriculture has advanced in Dale County, man has become important in the development of soils. His work of clearing the forest, cultivating the soil, introducing new species of plants, and improving drainage will be reflected in the future formation of soils.

PARENT MATERIALS: The parent materials of the soils in Dale County are mainly unconsolidated beds of sands, sandy clays, and clays. These materials were deposited on the bottom of an ancient sea or along its edges. Later the bed formed by these deposits was elevated, and it became the present Coastal Plain. Then much of the area was overspread by a sandy formation, which has yielded many of the sands and sandy loams in the county.

The soils of the county are generally sandy, but, mainly because of the differences in drainage, they vary considerably from place to place. In the hilly northern section of the county, the dominant underlying formations are strata of stiff, compact, plastic clays that have alternate layers of sandy materials. In places erosion has exposed these stratified clays and sands. The Cuthbert, Shubuta, Boswell, and similar soils have formed from the stratified sands and clays.

The alluvial sediments of sands, silts, and clays that were washed from the surrounding upland are the parent materials of the soils of the flood plains and terraces. Along the smaller streams, the material was predominantly sandy alluvium. Along the larger streams and terraces, Bibb, Leaf, Flint, and similar soils have formed from the finer textured silts and clays.

RELIEF: The general direction of drainage in Dale County is toward the southwest. The relief ranges from highly dissected ridgetops and steep side slopes in the northern part of the county to broad, smooth flats in the southern part. The northern part of the county is very gently sloping to moderately steep; the southern part is level to sloping. The larger streams—the Pea and Choctawhatchee Rivers—have broad flood plains with large level to gently sloping terraces. The smaller streams have narrow bands of poorly drained alluvium that are surrounded by moderately steep, broken hills. Much of the acreage on the first bottoms and terraces receives seepage water from the surrounding uplands and is poorly drained.

The monoclinal structure slopes generally westward. The elevation at Rocky Head in the northern part of the county is 465 feet above sea level, and that of Midland City in the southern part is 360 feet. Other elevations are Ozark, 400 feet; Daleville, 332 feet; and Pinckard, 381 feet.

TIME: The age of a soil can be determined by the degrees of development of its profile. Mature soils have well-developed profiles with clearly defined horizons, or layers. Except those in the Regosol great soil group, most soils of the upland are mature and well defined. These mature soils of the upland show the effects of all five factors of soil formation, or genesis. They have a leached surface layer underlain by a finer textured subsoil, which within each series is uniform in color and well oxidized.

The somewhat younger soils are intermediate in development. The horizons are discernible but are not very clearly defined. In many places they have fewer horizons than the mature soils. Soils in the Low-Humic Gley and Planosol great soil groups have intermediate development.

The young soils are weakly developed. They are Alluvial soils, and the sandy soils of the Regosol great soil group.

Classification of Soils

Soils are classified at several levels. The lowest three—phase, type, and series—are discussed in the section, Soil Survey Methods and Definitions. Soil series may be grouped into higher categories. The highest category, called the soil order, has three divisions—zonal soils, intrazonal soils, and azonal soils. Subdivisions within each soil order are called great soil groups, which are broad groups of soils that have fundamental characteristics in common. The classification of soils into higher categories is based on an article by Thorp and Smith in Soil Science, February 1949 [4] and the 1938 Yearbook of Agriculture, Soils and Men.[5]

The zonal soil order consists of those great soil groups that have soils with well-developed characteristics that reflect the influence of the active factors of soil genesis—climate and living organisms, chiefly vegetation. The outstanding characteristic of the zonal soils in Dale County is their leached A horizon that is underlain by a finer textured, more uniformly colored, well-oxidized B horizon. The C horizon varies considerably from place to place, but in most places it is coarser than the B horizon and finer than the A horizon. On some soils that had a relatively thick A horizon before they were disturbed, erosion has removed part or all of the original sandy layer and has exposed the yellow or red sandy clay subsoil.

The intrazonal order consists of those great soil groups having soils with moderately well developed profiles that reflect the dominant influence of local relief or parent material over the influence of climate and vegetation. In Dale County, parent material, relief, and drainage are the factors mainly responsible for the development of those features that distinguish intrazonal soils.

The azonal order consists of those great soil groups having soils with poorly developed profiles. Alluvial soils that are developing from general and local alluvium are azonal soils. These soils are continually modified by deposits of new materials that are washed from the eroded upland; consequently, no horizons are developed. Rego-

[4] THORP, JAMES, and SMITH, GUY D. HIGHER CATEGORIES OF SOIL CLASSIFICATION: ORDER, SUBORDER, AND GREAT SOILS GROUPS. Soil Sci. 67: 117–120. 1949.

[5] UNITED STATES DEPARTMENT OF AGRICULTURE. SOILS AND MEN. U.S. Dept. Agr. Yearbook 1938, 1232 pp., illus.

sols are also azonal soils. They consist of deep, unconsolidated sand deposits in which there are few or no clearly expressed soil characteristics.

The classification of the soil series in Dale County, according to orders and great soil groups, is shown in the following list:

Zonal soils—
- Red-Yellow Podzolic soils: (Red members):
  - Boswell
  - Carnegie
  - Cuthbert (intergrading to Regosols)
  - Faceville
  - Flint
  - Magnolia
  - Ruston
  - Shubuta
- Red-Yellow Podzolic soils: (Yellow members):
  - Angie
  - Bowie
  - Izagora
  - Kalmia
  - Marlboro
  - Norfolk
  - Tifton
- Reddish-Brown Lateritic soils:
  - Red Bay

Intrazonal soils—
- Low-Humic Gley soils:
  - Bibb (intergrading to Alluvial soils)
  - Grady (intergrading to Humic Gley soils)
  - Myatt
  - Plummer
  - Rains
- Planosols:
  - Leaf

Azonal soils—
- Alluvial soils:
  - Hannahatchee
  - Iuka
- Regosols:
  - Americus (intergrading to Reddish-Brown Lateritic soils)
  - Eustis
  - Huckabee
  - Lakeland

Morphology of Soils by Great Soil Groups

In this subsection the morphology of the soils of all the series in Dale County is discussed by respective great soil groups. Soil profiles that represent each series are described in the subsection, Soil Series, Types, and Phases.

Red-Yellow Podzolic soils

This great soil group is divided into red members and yellow members. The cause of the difference in color is not known. Apparently the red members were derived from materials higher in bases than the materials of the yellow members.

RED MEMBERS

The red members of the Red-Yellow Podzolic great soil group are zonal soils that have organic or organic-mineral layers over a yellowish-brown leached layer, which in turn overlies an illuviated red horizon. These soils developed under a deciduous or mixed forest in a warm-temperate, moist climate.

Boswell series.—The soils in this series have developed from acid clayey materials. These soils are very gently sloping to sloping and moderately shallow over highly mottled and streaked clay. They are somewhat poorly drained; internal drainage is very slow. They have a gray to brown surface soil and a subsoil of firm clay that is red in the upper few inches and prominently mottled in the lower part.

Carnegie series.—The only soil in this series in Dale County is Carnegie fine sandy loam, eroded very gently sloping phase. This soil has developed from deposits of unconsolidated sandy clays and clays. As in the Magnolia soils, the solum is thick and drainage is good. The Carnegie soil has a dark-gray or brown surface soil that overlies yellowish-red to red firm sandy clay. Many hard concretions of iron are distributed through the profile. Partly weathered, mottled clay occurs at depths below 40 inches.

Cuthbert series.—The soils in this series do not have strongly developed profiles like those of the Magnolia and other Red-Yellow Podzolic soils. They are actually intergrades toward the Regosol great soil group. They have developed from beds of clay that contain lenses of sand. They are moderately well drained to somewhat poorly drained. Cuthbert soils are sloping to moderately steep. They have a brownish-gray to pale yellow surface soil that is underlain by compact yellowish-red clay. The clay is highly mottled below depths of 6 to 20 inches.

Faceville series.—The soils in this series have developed from unconsolidated marine sediments, such as sandy clays and clays, on flats and very gentle slopes. They are generally slightly more friable than the Carnegie soils but do not contain iron concretions. They are less red than the Magnolia soils. Faceville soils are deep and well drained and have well-developed profiles. They have a dark-gray or grayish-brown surface soil that is underlain by a strong-brown or yellowish-red sandy clay subsoil, which, in turn, is underlain by mottled clay at depths below 36 inches.

Flint series.—The soils in this series have developed on level to very gently sloping terraces. Their parent material is alluvium that was washed from clays and sandy clays. These soils are moderately well drained to somewhat poorly drained and are moderately deep over intensely mottled clay. They have a gray surface soil that is underlain by a pale-brown to yellowish-red very firm clay subsoil. The subsoil is mottled in the lower part.

Magnolia series.—The soils in this series have developed from thick beds of acid sandy clays and clays. These soils are level to sloping and well drained. They are deep over unconsolidated sandy clay or clay material that is mottled and streaked. They have a brown surface soil and a reddish-brown or red sandy clay subsoil. In cultivated fields the surface layer has been mixed. An undisturbed profile would have a dark grayish-brown or brown A_1 layer high in organic matter and an eluviated, lighter colored A_2 horizon.

Ruston series.—The soils in this series have developed from thick beds of acid sandy clay loams that contain, in places, layers of sand, loamy sand, or sandy clay. These soils are level to strongly sloping and are well drained. They have a thick solum over reticulated sandy clay. Their grayish-brown surface soil is underlain by a subsoil of strong-brown to yellowish-red sandy clay loam. The subsoil overlies various kinds of partly weathered stratified sands to sandy clays. The Ruston soils have a thicker A horizon than that of the Magnolia, Faceville, and Carnegie soils.

Shubuta series.—The soils in this series have developed from thinly bedded clays, sandy clays, and clay shales. These soils are gently sloping to sloping and moderately well drained. Their solum is moderately thick. They have a gray to grayish-brown surface soil and a thin yellowish-red to red sandy clay loam subsoil that grades to clay at a depth of about 11 inches. The lower subsoil is highly mottled and streaked with shades of gray, red, and yellow clay. Some clay skins are on the faces of the peds. The Shubuta soils generally have less uniform characteristics than the Magnolia, Carnegie, Faceville, and Ruston soils.

YELLOW MEMBERS

The yellow members of the Red-Yellow Podzolic great soil group are moderately well developed to well developed zonal soils. They have thin organic and organic-mineral layers that are underlain by a grayish-yellow horizon.[6] These soils are nearly level to sloping. Except for the Izagora and Kalmia soils, the parent material of the yellow members consists of beds of sands, sandy clay, and clays. The parent material of the Izagora and Kalmia soils is alluvium that was washed from sands, loamy sands, sandy loams, and sandy clay loams. The yellow members developed under a forest vegetation of mixed hardwoods and pines. The climate was similar to that in which the red members developed.

Angie series.—The soils in this series occur with the Shubuta soils and are similar to them in most characteristics except color. These soils have developed from thinly bedded clays and sandy clays on very gently sloping to sloping relief. They are moderately well drained to somewhat poorly drained and are moderately deep over mottled clay. They have a gray to grayish-brown surface soil and a yellow to brownish-yellow subsoil. The subsoil is mottled in the lower part.

Bowie series.—The soils in this series have developed from beds of unconsolidated acid sandy clays. These soils are moderately well drained to well drained and have very gently sloping to sloping relief. They have a grayish-brown to yellowish-brown surface soil that is underlain by a light yellowish-brown to reddish-yellow sandy clay loam upper subsoil. Bowie soils are slightly heavier in the lower subsoil than are the Norfolk soils.

Izagora series.—The soils in this series are classed as Red-Yellow Podzolic soils, but they have some characteristics of Low-Humic Gley soils in their lower horizons. Izagora soils have developed along most streams in the county on old alluvium that was washed chiefly from the coarser textured soils. They are moderately well drained to somewhat poorly drained and are moderately deep over a parent matrial of mottled sandy clay. They have a gray to grayish-brown surface soil and a subsoil of yellowish-brown sandy loam to sandy clay loam that grades with increasing depth to mottled, yellowish-brown sandy clay.

Kalmia series.—The soils in this series occur on bench-like areas along rivers and somewhat smaller streams. These soils have developed from old alluvium that was washed from sandy soils of the Coastal Plain upland. They have a grayish-brown surface soil and a yellowish-brown sandy clay loam subsoil. In color, texture, structure, and consistence, Kalmia soils are similar to the Norfolk soils, which are on uplands.

Marlboro series.—The soils in this series have developed from thick beds of sandy loams and sandy clays. These soils are level to gently sloping and well drained. They are deep over mottled sandy clay. They have a gray to grayish-brown, thin surface soil and a yellow to yellowish-brown sandy clay subsoil. In cultivated fields the plow layer is a mixture of the subsoil and the original surface soil. An undisturbed profile would have a dark-gray organic-mineral A_1 horizon and a light-colored A_2 horizon.

Norfolk series.—The soils in this series have developed on beds of unconsolidated sands and clays. They are level to sloping and well drained. These soils are deep over various kinds of mottled, stratified sands and sandy clays. The solum of the Norfolk soils generally resembles that of the Marlboro soils in color, but Norfolk soils have a thicker A horizon, a more friable B horizon, and a sandier solum. They closely resemble the Ruston soils in texture, structure, and consistence but are less red.

Tifton series.—The soils in this series have developed from marine deposits of sandy clay on flats and gentle slopes. These soils occur with the Carnegie soils, which are redder but are similar in structure and consistence. Tifton soils are well drained and deep to deposits of reticulated sandy clay. The surface soil is a grayish-brown loamy sand, and the subsoil is yellow to yellowish-brown sandy clay loam to sandy clay.

Reddish-Brown Lateritic soils

These zonal soils have a reddish-brown surface soil and a red, very friable sandy clay or very fine sandy loam B horizon. In a few places the B horizon is underlain by beds of loamy sand, but in most places it is directly underlain by a deep substratum of compact sandy clay that has a network of mottles.

Red Bay series.—The soils in this series have developed from unconsolidated sands and sandy clays. These soils are well drained and deep over interstratified sands and clays. The horizons differ from one another very little in color. The surface soil is brown to dark reddish brown, and the subsoil is dark reddish brown to red. Red Bay soils are the only Reddish-Brown Lateritic soils mapped in Dale County.

Low-Humic Gley soils

Low-Humic Gley soils are in the intrazonal order. They are poorly drained and have a thin A_1 horizon, which is moderately high in organic matter. The surface soil overlies mottled gray and brown gleylike mineral horizons that differ little in texture.[7] The A_1 horizon is not prominent, but the B and C horizons are strongly gleyed. These soils range in texture from sand to clay. They are strongly acid. Their parent materials vary widely in physical and chemical properties. The native cover is mainly swamp forest.

Bibb series.—This series consists of soils that have developed from alluvium that was washed from sandy loams and sandy clay loams. These soils occur on flood plains along the larger streams of the county and are poorly drained. The water table is high most of the time. Because fresh alluvium is occasionally deposited on the surface, these soils are classified as intergrades toward the Alluvial great soil group. Bibb soils have a gray to grayish-brown surface soil that overlies a mottled, gray or grayish-brown silt loam to sandy clay loam subsoil. They contain little organic matter.

Grady series.—These soils have developed in poorly drained depressions on beds of deep acid, sandy loam and clay. Grady soils differ from the other Low-Humic Gley soils of Dale County in having a thicker and darker colored A_1 horizon. Because of these features of the surface soil, Grady soils are classified as intergrades toward the Humic Gley soil group.

[6] See footnote 5, p. 46.

[7] See nootnote 5.

Myatt series.—Myatt very fine sandy loam is the only Myatt soil mapped in Dale County. This soil occurs on low terraces bordering streams and is poorly drained. It has developed on old alluvium that was washed from Norfolk, Ruston, and other sandy soils. The water table is high during periods of high rainfall and low during dry periods. Because of this fluctuating water table and the consequent alternating oxidization and reduction, yellow and brown mottles have formed. The formation of this soil has been affected mainly by topography and vegetation. It has a light-gray to grayish-brown surface soil that overlies a gray sandy clay loam to silty clay subsoil. The subsoil is mottled below depths of about 10 inches. The A horizon contains a medium to low amount of organic matter.

Plummer series.—The soils in this series are mapped with those of the Rains series. Plummer soils are poorly drained. They occur mainly in the upland on flats and in depressions, but they are also in a few seepy areas on slopes as steep as 20 percent. The surface soil generally contains a medium amount of organic matter, but in some sanded areas it contains a large amount. The Plummer soils are generally much sandier throughout the profile than the Rains soils. The water table is normally high, but it fluctuates with the amount of rainfall.

Rains series.—The soils in this series have developed on thick beds of poorly drained acid sandy loams and sandy clay loams. These soils occur on broad flats and in a few seepy areas that have slopes of less than 20 percent. They have a gray or dark-gray surface soil that is poorly drained. Their subsoil is gray, mottled with yellow and brown. The surface soil contains a medium to small amount of organic matter. The water table is high during periods of prolonged rainfall and is low during periods of drought.

Planosols

Planosols are somewhat poorly drained to poorly drained intrazonal soils. They have one or more horizons that, because of compaction or high content of clay, strongly contrast with the adjacent horizons. They have developed in a climate similar to that in which zonal soils developed. The water table is high most of the year. The native vegetation was mainly mixed hardwoods and pines.

Leaf series.—Leaf soils are the only Planosols in Dale County. They occur on low stream terraces and have developed from old alluvium that was washed from Boswell, Shubuta, and other finer textured soils. They have a gray to dark grayish-brown surface soil that is underlain by a mottled, red, very firm clay subsoil. Internal drainage is very slow.

Alluvial soils

These azonal soils are developing from alluvium that has been deposited relatively recently. These deposits have been only slightly modified by the processes of soil formation, and there is little or no horizonation. Alluvial soils are on first bottoms along streams, in upland depressions, or at the base of slopes. These are young, immature soils on which additional soil material is still being deposited by water.

Hannahatchee series.—The only soil in this series mapped in Dale County is Hannahatchee loam, local alluvium phase. This is a moderately well drained soil developing from local alluvium that was washed mainly from reddish-brown or brown sandy loams, sandy clay loams, sandy clay, and clays. It occurs at the base of upland slopes, in slight depressions, and along narrow upland drainways. This soil shows some profile development but lacks the well-developed profiles of the surrounding Reddish-Brown Lateritic soils and Red-Yellow Podzolic soils. It has a dark grayish-brown to reddish-brown surface soil and a very dark grayish-brown to reddish-brown silty clay loam subsoil. The surface soil contains a medium amount of organic matter.

Iuka series.—The soils of this series are in positions similar to those of the Hannahatchee soils and along the larger streams. The Iuka soils, which are moderately well drained, are also similar to the Hannahatchee soils in drainage. They have had some profile development; a B horizon with slight differentiation in texture or color can be discerned.

Regosols

This is an azonal group of soils that consists of deep, unconsolidated materials in which few or no distinct soil characteristics have developed. In Dale County the Regosols formed from thick beds of acid sands or loamy sands. They have some characteristics of the associated zonal soils. For example, the Lakeland soils, which are Regosols, have about the same color profile as the Norfolk soils, which are Red-Yellow Podzolic soils. The Lakeland soils, however, are much sandier throughout the profile than are the Norfolk soils, and they lack the distinct textural development and horizon differentiation of the Norfolk soils. Parent material is the dominating factor in the formation of Regosols.

Americus series.—The soils in this series are classed as Regosols, but they intergrade toward the Reddish-Brown Lateritic soils. They are very gently sloping to moderately steep, somewhat excessively drained, deep, and sandy. These soils have developed on moderately thick beds of acid loamy sands and sands. Americus soils are similar to Red Bay soils in color and in many other characteristics. They are, however, more sandy than these Reddish-Brown Lateritic soils, and they lack distinct textural profile development. Americus soils have a surface soil of grayish-brown to dark reddish-brown loamy fine sand that overlies reddish-brown, loose loamy sand. Materials finer in texture than loamy fine sand occur at depths below 30 inches.

Eustis soils.—This series consists of level to steep, somewhat excessively drained, deep, sandy soils that have developed on thick beds of acid marine sands. These soils are similar to the Ruston soils in color but are much more sandy and lack distinct textural profile development. The Ruston are Red-Yellow Podzolic soils. Except in color, the Eustis soils are similar to the Lakeland soils. They have a brown loamy sand surface soil that overlies a strong-brown loamy sand subsoil. Material finer textured than that above occurs at depths below 30 inches.

Huckabee series.—In this series are somewhat excessively drained, deep, sandy soils. These soils have developed from alluvium that was washed mainly from sands and loamy sands. They occur on level to gently

sloping terraces along streams. In color they are similar to the Kalmia soils, which are yellow members of the Red-Yellow Podzolic great soil group. They have a gray to yellowish-brown loamy fine sand surface soil that is underlain by a subsoil of yellow to light-brown loamy sand. Sediments that are finer textured than the material above occur at depths below 30 inches.

Lakeland series.—Lakeland soils have some characteristics of Red-Yellow Podzolic soils but lack the well-defined profile development. They are level to steep, somewhat excessively drained, deep, and sandy. They have developed on thick beds of sands. Their surface soil is grayish-brown to pale-brown loamy fine sand, which is underlain by pale-yellow to light yellowish-brown loamy fine sand. Finer textured sediments occur at depths below 30 inches.

General Nature of the Area

Dale County, in southeastern Alabama, is on the Coastal Plain in the area commonly called the "Wiregrass Section." The county is about 29 miles long and 22 miles wide and has an area of 358,400 acres, or 560 square miles. Ozark, the county seat, is southeast of Montgomery on United States Highway 231. Dale County is bounded on the north by Barbour and Pike Counties, on the west by Coffee County, on the south by Geneva and Houston Counties, and on the east by Henry County. The Choctawhatchee and Little Choctawhatchee Rivers, for the most part, form the boundary between Dale and Houston Counties.

Climate

Dale County has a fairly short, mild winter and a long, warm summer. The average frost-free period is 257 days and extends from March 7 to November 15. Although periods of dry weather and periods of excessive rainfall do occur, precipitation is generally ample and well distributed (table 5).

The Gulf of Mexico has a moderating effect on the extremes of temperature in both summer and winter. The maximum temperature in summer generally is no higher than that in the Middle West. Generally, days are hot in summer but nights are cool. The temperature of the short winter varies considerably. Cool periods that last for several days alternate with shorter periods of moderate weather. Frost is common, but extremely cold weather is rare. Only a few days have freezing temperatures that last throughout the day. Snow may not fall for several consecutive years.

The climate of the county is suitable for growing a wide range of crops, including corn, cotton, peanuts, truck crops, small grain, and winter legumes. However, the growth of plants is slowed during short periods of very wet and very dry weather. The dry weather that is common in fall favors the harvesting of crops, but it hinders the growth of pasture plants that are seeded in fall. Early in spring, windstorms sometimes damage young plants. A few hailstorms also occur and cause local damage.

TABLE 5.—*Temperature and precipitation at Ozark, Dale County, Ala.*

[Elevation, 380 feet]

Month	Temperature [1]			Precipitation [2]			
	Average	Absolute maximum	Absolute minimum	Average	Driest year (1954)	Wettest year (1929)	Average snowfall
	°F.	°F.	°F.	Inches	Inches	Inches	Inches
December	51.8	85	13	4.85	2.71	3.23	(3)
January	50.8	84	8	4.45	.84	6.71	0.1
February	53.0	85	10	5.68	2.64	15.21	.1
Winter	52.0	85	8	14.98	6.19	25.15	.2
March	60.0	89	17	5.34	3.83	21.71	0
April	66.2	94	28	4.21	2.47	2.18	0
May	73.5	101	40	3.43	1.51	2.83	0
Spring	66.6	101	17	12.98	7.81	26.72	0
June	79.6	107	47	4.58	1.85	9.42	0
July	80.7	107	60	6.16	3.49	3.84	0
August	80.6	106	59	5.57	2.78	2.72	0
Summer	80.3	107	47	16.31	8.12	15.98	0
September	77.5	109	45	4.17	.87	2.64	0
October	67.8	97	30	2.58	.93	9.54	0
November	57.4	88	14	2.90	1.70	4.32	(3)
Fall	67.7	109	14	9.65	3.50	16.50	(3)
Year	66.7	109	8	53.92	25.62	84.35	.2

[1] Average temperature based on a 54-year record, through 1955; highest temperature on a 50-year record and lowest temperature on a 51-year record, through 1952.

[2] Average precipitation based on a 66-year record, through 1955; wettest and driest years based on a 65-year record, in the period 1887–1955; snowfall based on a 49-year record, through 1952.

[3] Trace.

The rainy winter is favorable for growing winter cover crops, such as vetch, crimson clover, and small grain. The growth of these crops, however, is likely to be retarded in fall by droughts. Pasture plants grow rapidly when there is ample moisture, and well-managed pastures are productive for 8 to 10 months of the year. Because the soil seldom freezes deeper than 6 inches, it can be plowed throughout the winter. In winter and early in spring when the fields may be bare, heavy rains are likely to wash away some of the soil. Because much of the soil is sandy, plant nutrients are leached out during periods of heavy rains, particularly from the deep sandy soils.

Geology

Five distinct Tertiary formations—Nanafalia, Tuscahoma sand, Hatchetigbee, Bashi, and Tallahatta—underlie the soils of Dale County.

The Nanafalia formation extends across the northern part of the county. It consists of gray sandstones and laminated clays from which the Cuthbert, Shubuta, and similar soils were derived.

Tuscahoma sand, which is also called the Bells Landing series, borders the Nanafalia formation and extends across the county in the same general direction as the Nanafalia. It consists of beds of clayey sands, sandy clays, and marls. The Ruston, Cuthbert, Boswell, and Shubuta soils occur on Tuscahoma sand.

The Hatchetigbee and Bashi formations appear at the surface in only a few places in the county. The Hatchetigbee formation consists mainly of deep beds of sandy clays or clayey sands, and the Bashi formation is marl over sandy clays that contain seams of lignite.

The Tallahatta formation, which is also called Buhrstone, extends under a larger acreage than any other geologic formation in the county. It extends in an irregular line from Daleville, through Ozark, Echo, and Clopton and covers much of the southern and eastern parts of the county. It consists of claystone, sandstone, and red and yellow sand.

The formations in Dale County come to the surface in roughly parallel belts, but the soils that developed on them have little belted arrangement. In many places these soils are entirely unrelated to the underlying formations. For example, sandy soils are found over clays in many places. These clays normally would give rise to clay loams and other heavy soils, but sandy soils develop because a thin mantle of sandy material overlies the formation in much of the county.

Water Supply

Drinkable water is found in all parts of Dale County. Some of the natural springs that were used by the first settlers are still in use. The county also has flowing wells, most of them near the larger streams. The Choctawhatchee wells and those at Munns Bridge furnish water for swimming pools and other recreational uses. Many tourists visit the Clayhatchee wells each year.

Although the first wells dug were shallow, much deeper wells are now used. The shallow wells are about 30 feet, but, because these do not supply the water that is needed for livestock and home use, many deeper wells have been drilled. Some of these wells are 200 feet deep and supply water for irrigation as well as other uses. Many artificial stock ponds and fish ponds have been constructed. In many places, seepy areas at the base of slopes could be made into watering places for livestock.

Vegetation

The early settlers found the area to be heavily forested with pure stands of longleaf, loblolly, and shortleaf pines or mixed stands of pines and hardwoods. Magnolia, cypress, ash, bamboo, and an undergrowth of gallberries and briers grew where there was abundant moisture.

Virgin timber was used for building houses and barns and for fuel. Much of the timber was burned when the land was cleared for planting crops. Because markets were distant, choice logs and other forest products were not commercially important during the early years of settlement.

All the original stands were cut, and stands of young pines, many of them inferior, were left. In many places, especially on the deep sandy soils, the pines have been followed by thick stands of scrubby oak and blackjack oak that are almost worthless. In recent years, the growth of pines has been helped by good forest management.

Settlement and Population

Dale County was created from parts of Barbour, Covington, Henry, and Pike Counties in 1824. It was named in honor of Gen. Samuel Dale, who had won distinction during the Indian War. The county seat was Daleville until 1841, when it was moved to Newton. In 1864, it was moved to Ozark, the present county seat.

The population of Dale County is gradually declining. This decline is caused mainly by the introduction of improved farm machinery and the restrictive farm program. The improved machinery reduces the number of farm laborers needed. The farm program reduces the acreage in peanuts and cotton. The population of Ozark, however, grew from 3,500 in 1945 to 7,500 in 1956. Ozark is the largest incorporated town. Other incorporated towns, all having populations less than 500, are Ariton, Newton, Pinckard, Midland City, and Daleville.

Schools

High schools are at Ozark, Ariton, Newton, and Midland City; junior high schools are at Daleville, Pinckard, Echo, and Skipperville. There are four elementary schools in Dale County, all of which are served by buslines. The George C. Wallace Vocational Trade School is at Napier Field.

Railroads and Roads

The main line of the Atlantic Coast Line Railroad runs the entire length of the county. It enters the county from the northwestern corner and leaves the county near Grimes in the southeastern corner. This line has stations and sidings at Ariton, Ozark, Ewell, Newton, Pinckard, Midland City, and Napier Field. From Waterford a branch line passes through Fort Rucker and Daleville and extends to Elba in adjoining Coffee County. Another branch runs from the main line at Grimes to Abbeville in Barbour County. A branch of the Central of Georgia Railway extends from its terminus at Ozark to Clayton and Eufaula in adjoining Barbour County.

United States Highway 231 runs diagonally across the county, generally from northwest to southeast. United States Highway 84 runs through Clayhatchee and crosses the southwestern corner of the county. State Highways 27 and 85 are lateral roads that connect with the main highways. Hard-surfaced roads are accessible to all parts of the county, and a number of farm-to-market roads run into them. Buses run to points outside the county, and freight is carried over the main highways.

Farm, Home, and Community Facilities

Dwellings in rural areas, especially in the southern part of the county, range from large, well-built houses on the more prosperous farms to very poor houses on some of the tenant farms. The southern part of the county

has, in general, the best dwellings and farm buildings. Electricity is available in nearly all sections of the county, and most farm homes are fairly well equipped with modern conveniences. Telephone service is available in practically all small towns and local centers, and a few telephone lines extend to rural sections. Mail service is countywide. Nearly all of the most frequently traveled roads are hard surfaced, and other roads are scheduled to be paved in the near future. Ozark has a weekly newspaper, a radio station, a modern hospital, and a health unit. The health unit consists of the county health officer, a nurse, and a sanitary engineer.

Recreation Facilities

The nearby Gulf of Mexico and the good fishing waters in Florida are fairly accessible to residents of Dale County. The largest recreation facility in the county is Lake Tholocco on the Fort Rucker Military Reservation where there is a beach, picnic grounds, and good fishing. Another lake for fishing is now being built in the county.

Industries

Many people in Dale County are employed in construction and in industries that produce lumber, other building materials, and pulpwood. Several mills manufacture textile products, and a factory at Napier Field makes furniture. At the beginning of World War II, the construction of Napier Field and Camp Rucker increased the development and growth of the county. Napier Field has been closed, but the Fort Rucker Army Aviation School, which has been converted from Camp Rucker, employs many people and uses many local products.

Agriculture

The agriculture of Dale County was founded on the staples, cotton and corn, which were sold. Only enough livestock and vegetables were produced to supply home needs. The first farming was in the northern, or hilly, section of the county where the earliest settlements were made. Not until the latter part of the 19th century and the early part of this century did the southern part of the county become one of the most productive and intensively cultivated sections. Table 6 gives the acreage of principal crops and number of bearing nut trees in the county for stated years.

Because the boll weevil damaged the cotton, peanuts became a cash crop in the county about 40 years ago. Peanuts are now one of the main sources of farm income. Before the early 1930's, when the Agricultural Adjustment Administration was created, 40,000 acres were planted to cotton and 35,000 acres to peanuts. The rest of the open land was planted to corn and other field crops that were used to feed livestock, mainly hogs.

In 1954, only about 9,500 acres were in cotton and 21,000 acres were in peanuts. This decrease in the acreage of cotton and peanuts was the result of the acreage restrictions of the farm program. The rest of the available soil was planted to corn, peanuts for hogs, soybeans, and grain sorghum. In recent years several thousand acres of cropland has been seeded to permanent pasture that is used to graze cattle.

TABLE 6.—*Acreage of principal crops and number of bearing nut trees in Dale County, Ala., in stated years*

Crop	1929	1939	1949	1954
	Acres	*Acres*	*Acres*	*Acres*
Corn for all purposes	40, 975	43, 268	34, 671	36, 208
Cotton harvested	41, 029	19, 878	7, 226	9, 518
Peanuts grown alone	31, 083	46, 320	33, 736	21, 721
Sorghums for all purposes except sirup	28	36	450	482
Small grains threshed or combined	1, 593	298	303	1, 398
Vegetables harvested for sale	332	[1] 887	1, 327	825
Watermelons	142	115	331	348
Sweetpotatoes	771	1, 016	238	98
	Number [2]	*Number* [2]	*Number* [2]	*Number*
Pecan trees	6, 406	12, 737	11, 532	6, 548

[1] Includes 115 acres of watermelons.
[2] Number in census year, which is 1 year later than the crop year given at the head of the column.

Before 1939 much of the acreage in peanuts was hogged off in Dale County, which had long been a leading hog-producing county in Alabama. During World War II, however, the increased demand for peanuts caused a much larger acreage to be planted, and peanuts became the leading cash crop. Although crop allotments have reduced the acreage planted in recent years, peanuts remain the leading cash crop in the county.

The number of livestock in the county generally has increased since 1940 (table 7). Peanut hay is the main source of roughage for the livestock. Before 1940, much of the hay was sold to cattle raisers in Florida and in the Black Belt section of Alabama. Because of the increased number of livestock in the county, the local demand for peanut hay has increased. In 1954, 7,847 tons of peanut hay was baled. The large cattle producers are now supplementing the peanut hay with grass hay, mostly coastal bermudagrass and bahiagrass.

About 25,000 acres of cropland, some the best in the county, has been taken for activities of national defense. About 200 farm families gave up farming in the county when their land was acquired by the Government, and about 200 other farm families started farming in other sections of the county.

TABLE 7.—*Number of livestock on farms in Dale County, Ala., in stated years*

Livestock	1930	1940	1950	1954
	Number	*Number*	*Number*	*Number*
Horses and mules	4, 297	[1] 3, 914	2, 695	1, 360
Cattle and calves	6, 160	[1] 6, 926	7, 737	14, 487
Swine	29, 515	[2] 18, 438	30, 196	29, 249
Sheep and lambs	51	([3])	9	11
Chickens	[1] 55, 296	[2] 50, 607	[2] 40, 970	[2] 47, 505

[1] Over 3 months old.
[2] Over 4 months old.
[3] Not reported.

According to the United States Census, there were 1,611 farms in the county in 1954. The average-sized farm was 158 acres. These farms had a total of about 72,000 acres in cultivation and 6,904 acres in permanent pasture. The 1,611 farms were made up of 541 field-crop farms other than vegetable, fruit, or nut, 16 dairy farms, 15 poultry farms, 228 livestock farms other than dairy or poultry, 310 general farms, and 501 miscellaneous and unclassified farms.

In 1954, owners operated 65.9 percent of the farms in Dale County and tenants operated 34.1 percent. The total number of tenants was 550, of which 344 were share tenants and croppers, 128 were cash tenants, 28 were share-cash tenants, and 50 were miscellaneous tenants. There were 760 full owners, 298 part owners, and 3 managers. The proportion of farms operated by owners to those operated by tenants varies in different parts of the county.

In 1954, there were 224 farms less than 30 acres in size, 184 ranging from 30 to 49 acres, 379 ranging from 50 to 99 acres, 752 ranging from 100 to 400 acres, and 72 more than 500 acres in size.

In 1954, 720 farms in Dale County reported having tractors, a significant increase over the 433 farms that reported in 1950. The number of farms that reported having trucks increased from 464 in 1950 to 814 in 1954. Many farmers employ custom operators to harvest peanuts, hay, and some corn. A few mechanical cotton pickers are in use, mostly in the southern part of the county. Except for harvesting peanuts and cotton, most farmers in the county do not hire laborers.

Glossary

Acidity. Degree of acidity of the soil mass expressed in pH values or in words as follows:

	pH		*pH*
Extremely acid	below 4.5	Slightly acid	6.1–6.5
Very strongly acid	4.5–5.0	Neutral	6.6–7.3
Strongly acid	5.1–5.5	Mildly alkaline	7.4–8.0
Medium acid	5.6–6.0		

Alluvial soils. Azonal group of soils that are developing from transported, fairly recently deposited alluvium that has had little or no modification by soil-forming processes.

Alluvium. Sand, mud, and other sediments deposited on land by streams.

Clay. The small mineral soil grains, less than 0.002 mm. (0.000079 in.) in diameter. (Formerly included the grains less than 0.005 mm. in diameter.)

Consistence. A soil term expressing degree of cohesion and the resistance to forces tending to deform or rupture the aggregate. The relative mutual attraction of the particles in the whole mass, or their resistance to separation. Some of the terms used to describe consistence are *brittle, compact, firm, friable, plastic, sticky,* and *stiff.*

Brittle. Breaking (when dry) with a sharp, clean fracture; breaking (when dry) into cleanly broken, hard fragments.

Compact. Dense and firm but without cementation.

Firm. Resistant to forces tending to produce rupture or deformation.

Friable. Easily crushed under gentle to moderate pressure between thumb and forefinger; cohering when pressed together.

Plastic. Forming a wirelike shape when rolled between hands; requiring moderate pressure for deformation of soil mass.

Sticky. Adhesive rather than cohesive when wet, but usually very cohesive when dry. When wet, soil tends to adhere to other material and objects.

Stiff. Resistant to deformation or rupture; firm, tenacious, and tends to be impervious. Usually applied to soil in place and moderately wet.

Erosion, soil. The wearing away or removal of soil material by water or wind.

Fertility, soil. The capacity of a soil to supply the amounts, kinds, and proportions of nutrients needed for growth of specified plants when other conditions such as water, light, and heat are favorable.

First bottom. The normal flood plain of a stream; land along the stream subject to overflow.

Genesis (see also Horizon). Mode of origin of the soil, referring particularly to the processes responsible for the development of the solum (horizons A and B) from the unconsolidated parent material.

Granular (see also Structure, type). Roughly spherical aggregates that may be either hard or soft, usually more firm than in crumb structure and without the distinct faces of blocky structure.

Great soil group (soil classification). A broad group of soils having certain internal soil characteristics in common.

Horizon, soil. A layer of soil, approximately parallel to the soil surface, with distinct characteristics produced by soil-forming processes.

Horizon A. The upper horizon of the soil mass from which material has been removed by percolating water; the eluviated part of the solum; the surface soil. It is generally subdivided into two or more subhorizons, of which A_0 is not a part of the mineral soil but is the accumulation of organic debris on the surface. Other subhorizons are designated as A_1, A_2, and so on.

Horizon B. The horizon of deposition, to which materials have been added by percolating water; the illuviated part of the solum; the subsoil. This horizon may also be divided into several subhorizons, depending on the color, structure, consistence, or character of the material deposited. These layers are designated as B_1, B_2, and so on.

Horizon C. The horizon of partly weathered material underlying the B horizon; the substratum; usually the parent material.

Horizon D. Any stratum underlying the C horizon, or the B horizon if no C is present. This stratum may be hard rock, layers of sand, or other material. It is not parent material but may be significant to the overlying soil.

Internal drainage. Movement of water through the soil profile. This rate is affected by the texture of the surface soil and subsoil, and by the height of the ground water table, either permanent or perched. Relative terms for expressing internal drainage are the following: *Very rapid, rapid, medium slow, very slow,* and *none.*

Leaching, soil. Removal of materials in solution.

Massive (see also Structure, grade). Uniform masses of cohesive soil, sometimes with ill-defined and irregular breakage, as in some of the fine-textured alluvial soils; structureless.

Morphology. The physical constitution of the soil expressed in the kinds of horizons, their thickness and arrangement in the profile, and the texture, structure, consistence, porosity, and color of each horizon.

Mottles, soil. Contrasting color patches that vary in number and size. Descriptive terms are as follows: Contrast—*faint, distinct,* and *prominent*; number—*few, common,* and *many*; and size—*fine, medium,* and *coarse.* The size measurements are the following: Fine, commonly less than 5 mm. (about 0.2 in.) in diameter along the greatest dimension; medium, commonly ranging between 5 and 15 mm. (about 0.2 to 0.6 in.) along the greatest dimension; and coarse, commonly more than 15 mm. along the greatest dimension.

Natural drainage. Refers to those conditions that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be due to other causes, such as sudden deepening of channels or sudden blocking of drainage outlets. The following relative terms are used to express natural drainage: *Excessively drained, somewhat excessively drained, well drained, moderately well drained, imperfectly or somewhat poorly drained, poorly drained,* and *very poorly drained.*

Nutrients, plant. The elements taken in by the plant, essential to its growth, and used by it in the elaboration of its food and tissue. The following important elements are obtained from the soil: Nitrogen, phosphorus, calcium, potassium, magnesium sulfur, iron, manganese, copper, boron, and zinc. Carbon, hydrogen, and oxygen are obtained largely from the air and water.

Parent material (see also Horizon C, Profile, and Substratum), The unconsolidated mass from which the soil profile develops.

Permeable. Easily penetrated, as by water or air.

Productivity, soil. The capacity of a soil to produce a specified plant (or plants) under a given system of management.

Profile, soil. A vertical section of the soil from the surface in to the parent material.

Relief. The elevations or inequalities of the land surface, the slope gradient, and the pattern of these.

Runoff. This term refers to the amount of water removed by flow over the surface of the soil. The amount and rapidity of runoff are affected by factors such as texture, structure, and porosity of the surface soil, the vegetative covering, the prevailing climate, and the slope. Relative degrees of runoff are expressed in six classes as follows: *Very rapid, rapid, medium, slow, very slow,* and *ponded.*

Sand. Small rock or mineral fragments with diameters ranging between 0.05 mm. (0.002 in.) and 1.0 mm. (0.039 in.). The term "sand" is also applied to soils containing 85 percent or more of sand.

Silt. Small mineral soil grains ranging from 0.05 mm. (0.002 in.) to 0.002 mm. (0.000079 in.) in diameter.

Single grain. (see also Structure, soil). Each grain by itself, as in dune, sand; structureless.

Soil. An organized natural body occurring on the surface of the earth, characterized by conformable layers that result from modification of parent material by physical, chemical, and biological forces through various periods of time.

Soil textural classes. Classes of soil based on the relative proportion of soil separates or individual size groups of soil particles such as sand, silt, or clay. The principal textural classes, in increasing order of the content of the finer separates, are as follows: *Sand, loamy sand, sandy loam, loam, silt loam, clay loam,* and *clay.*

Structure, soil. The morphological aggregates in which the individual soil particles are arranged. Term may refer to their natural arrangement in the soil when in place and undisturbed or to the soil at any degree of disturbance. Soil structure is classified according to grade, class, and type.

Structure, soil—Continued

Grade. Degree of distinctness of aggregation; expresses the differential between cohesion within aggregates and adhesion between aggregates. Terms: *Structureless* (single grain or massive), *weak, moderate,* and *strong.*

Class. Size of soil aggregates. Terms: *Very fine* or *very thin, fine* or *thin, medium, coarse* or *thick,* and *very coarse* or *very thick.*

Type. Shape of soil aggregates. Terms: *Platy, prismatic, columnar, blocky, subangular blocky, granular* (nonporous), and *crumb* (very porous). (Example of soil-structure grade, class, and type: Moderate, coarse, subangular blocky.)

Solum (see also Horizons A and B). The genetic soil developed by soil-building processes. In normal soils the solum includes the A and B horizons, or the upper part of the soil profile above the parent material.

Subsoil. Technically, the B horizon; roughly, that part of the profile below plow depth.

Substratum (see also Horizon C and Parent material). Material underlying the subsoil.

Surface soil. Technically, the A horizon; commonly, the part of the upper profile usually stirred by plowing.

Terrace (for control of surface runoff, erosion, or both). A broad surface channel or embankment constructed across sloping land, on or approximately on contour lines, at specific intervals. The terrace intercepts surplus runoff to retard it for infiltration or to direct the flow to an outlet at nonerosive velocity.

Terrace (geologic). An old alluvial plain, usually flat or smooth, bordering a stream; frequently called a second bottom as contrasted to the flood plain; seldom subject to overflow.

Texture, soil. The relative proportions of the various size groups of individual soil grains in a mass of soil. Specifically, texture refers to the proportions of sand, silt, and clay. A coarse-textured soil is one high in sand; a fine-textured soil has a large proportion of clay.

Upland (geologic). Land consisting of material unworked by water in recent geologic time and generally lying at higher elevations than the alluvial plain or stream terrace.

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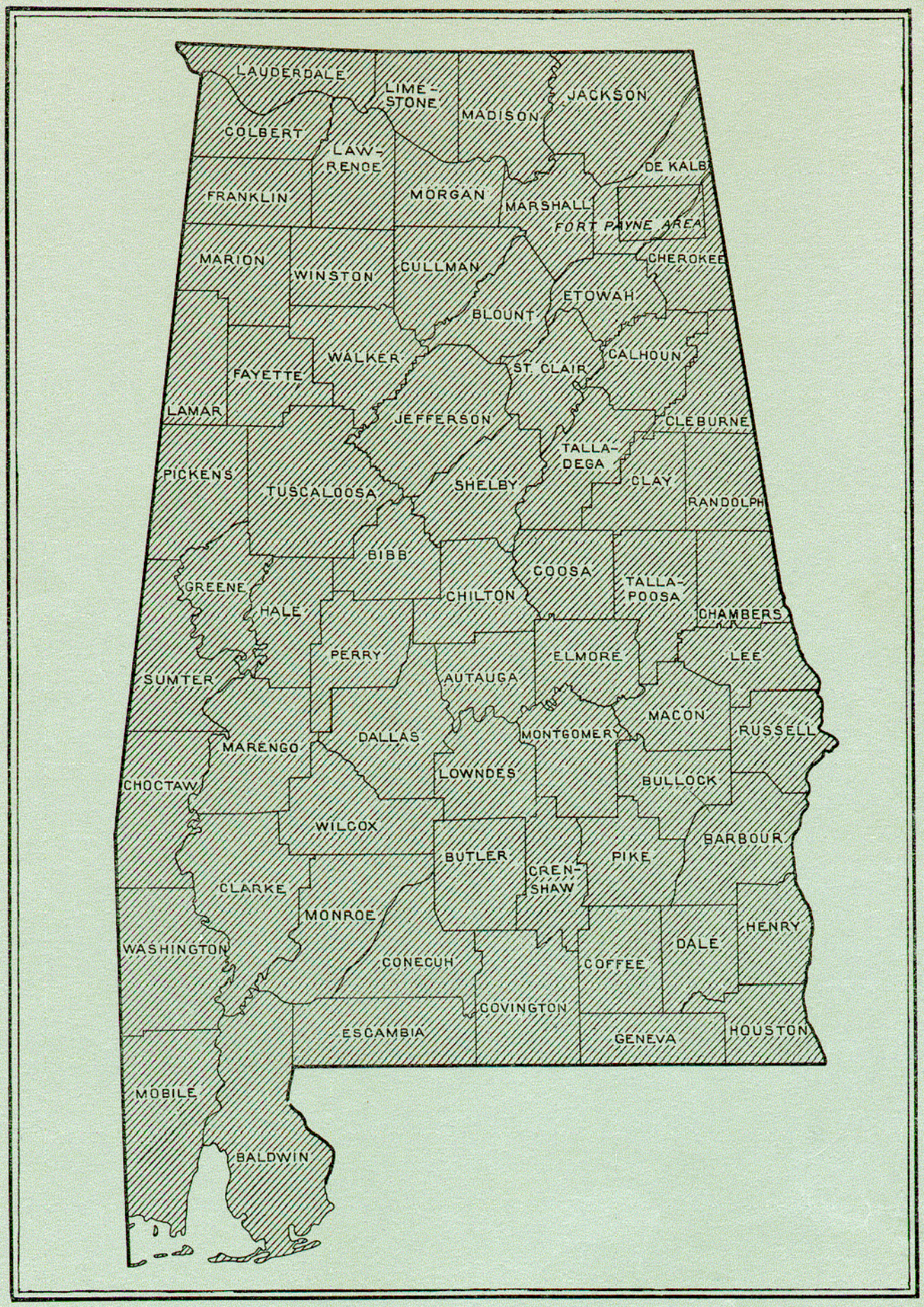

Areas surveyed in Alabama shown by shading.