Issued December 1969

SOIL SURVEY
Greene County, Arkansas

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
ARKANSAS AGRICULTURAL EXPERIMENT STATION

Major fieldwork for this soil survey was done in the period 1958–64. Soil names and descriptions were approved in 1966. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1965. This survey was made cooperatively by the Soil Conservation Service and the Arkansas Agricultural Experiment Station; it is part of the technical assistance furnished to the Greene County Soil and Water Conservation District.

Either enlarged or reduced copies of the printed soil map can be made by commercial photographers, or can be purchased, on individual order, from the Cartographic Division, Soil Conservation Service, USDA, Washington, D.C. 20250.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, or other structures; and in appraising the suitability of tracts of land for agriculture, industry, and recreation.

Locating Soils

All of the soils of Greene County are shown on the detailed map at the back of this survey. This map consists of many sheets that are made from aerial photographs. Each sheet is numbered to correspond with a number shown on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by a symbol. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information in the survey. This guide lists all of the soils of the county in alphabetic order by map symbol. It shows the page where each kind of soil is described, and also the page for the capability unit and wildlife group.

Interpretations not included in the text can be developed by grouping the soils according to their suitability or limitations for a particular use. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from the soil descriptions and from discussions on use of the soils for crops and pasture.

Foresters and others can refer to the section "Use of the Soils for Woodland," where the soils of the county are grouped according to their suitability for trees.

Game managers, sportsmen, and others concerned with wildlife will find information about soils and wildlife in the section "Use of the Soils for Wildlife."

Community planners and others concerned with suburban development can read about the soil properties that affect the choice of sites for homes, industry, and recreation in the section "Nonfarm Uses of the Soils."

Engineers and builders can find under "Engineering Uses of the Soils" tables that give facts about engineering properties of the soils in the county and that name soil features that affect engineering practices and structures.

Scientists and others can read about how the soils were formed and how they are classified in the section "Formation, Classification, and Morphology of Soils."

Newcomers in Greene County may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the County," which gives additional information about the county.

Cover picture: Soybeans following a green-manure crop of vetch and rye on Bosket fine sandy loam, 0 to 1 percent slopes.

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SOIL SURVEY OF GREENE COUNTY, ARKANSAS

BY NELSE W. ROBERTSON, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH ARKANSAS AGRICULTURAL EXPERIMENT STATION

GREENE COUNTY is in the northeastern part of Arkansas (fig. 1). It is irregular in shape and has a maximum length of 32 miles and a maximum width of 20 miles. Its approximate land area is 370,560 acres, or 579 square miles. Paragould, the county seat, is in the southeastern part of the county.

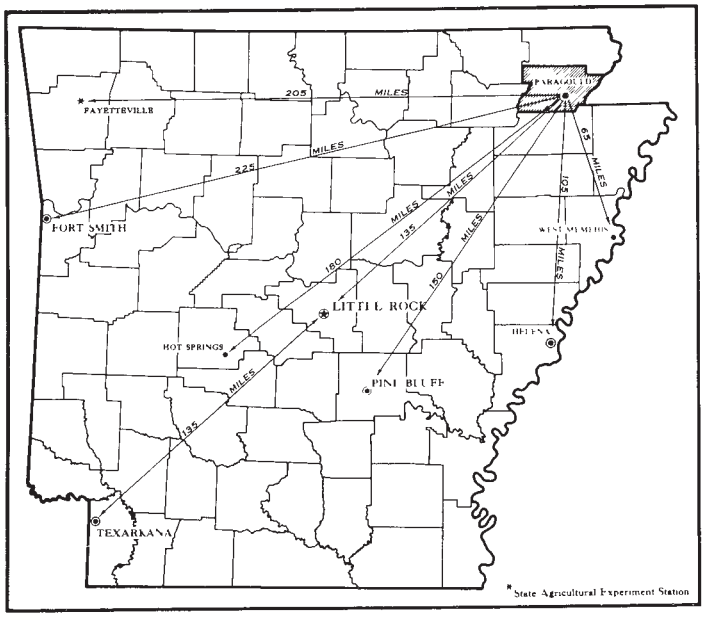

Figure 1.—**Location of Greene County in Arkansas.**

The first white settlers came to the area in 1821. Benjamin and Samuel Crowley, with the help of the Shawnee Indians, constructed the first house on the ridge, near the present site of Walcott. This ridge later became known as Crowley Ridge. By 1890, the population of the county reached 12,908 (*6*).[1] It has steadily increased to the present total of 25,200. The county is served by two railroads, six truck lines, and one bus line. Five paved State highways are the main connections to outside points. County roads are mainly gravel.

About 50 percent of the county consists of level or nearly level soils that formed in alluvium deposited by large rivers. The remaining 50 percent consists of soils formed mainly in loess. Sediments of sandy and gravelly Coastal Plain material underlie the loess and are exposed where the loess is thin. Most of the soils contain moderate to large amounts of plant nutrients, and there is an abundant supply of ground water for agriculture and industry.

Greene County is mainly a farming area. Cotton, rice, and soybeans are the principal crops. A small acreage is in permanent pasture. The migration of farm labor to industry and the acreage allotments placed on cotton and rice have encouraged the trend toward growing more soybeans. The shortage of farm labor has been partly offset by mechanization and by chemical weed control.

The total annual rainfall in the county is greater than that needed for most crops, but the distribution of rainfall commonly is not favorable for the best growth of crops. In summer, dry periods occur, and most crops are benefited by supplemental irrigation. In winter and spring, drainage is needed in many areas.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soils are in Greene County, where they are located, and how they can be used.

They went into the county knowing they likely would find many soils they had already seen, and perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide uniform procedures. To use this survey efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Loring and Fountain, for

[1] Italic numbers in parentheses refer to Literature Cited, page 63.

example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the natural, undisturbed landscape. Soils of one series can differ somewhat in texture of the surface soil and in slope, erosion, or some other characteristic that affects use of the soils by man.

Many series contain soils that differ in texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. Fountain silt loam and Fountain clay loam are two soil types in the Fountain series. The difference in texture of their surface layer is apparent from their names.

Some soil types vary so much in slope, degree of erosion, or some other feature affecting their use that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into phases. The name of a soil phase indicates a feature that affects management. For example, Loring silt loam, 3 to 8 percent slopes, eroded, is one of several phases of Loring silt loam, a soil type that ranges from nearly level to moderately steep.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this survey was prepared from aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil type or soil phase.

In preparing some detailed maps, the soil scientists have a problem of delineating areas where different kinds of soils are so intricately mixed or occur in such small individual tracts that it is not practical to show them separately on the map. Therefore, such an area is shown as one mapping unit and is called a complex. Ordinarily, a soil complex is named for one or more of the major kinds of soil in it, for example, Foley complex, 0 to 1 percent slopes.

Another kind of mapping unit is the undifferentiated group, which consists of two or more soils that may occur together without regularity in pattern or relative proportion. The individual tracts of the component soils could be shown separately on the map, but the differences between the soils are not important for the purpose of the soil survey. An example is Loring and Memphis silt loams, 12 to 20 percent slopes.

Most surveys include areas where the soil material is so rocky, so shallow, or so frequently worked by wind or water that it cannot be classified by soil series. These areas are shown on the soil map like other mapping units, but they are given descriptive names, such as Gullied land, and are called land types.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field and plot experiments on the same kinds of soils. Yields under defined management are estimated for all the soils.

Only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in such a way as to be readily useful to different groups of readers, among them farmers, managers of woodland, engineers, and homeowners. Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in a soil survey. On the basis of yield and practice tables and other data, the soil scientists set up trial groups. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others. Then, they adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

The general soil map at the back of this survey shows, in color, the soil associations in Greene County. A soil association is a landscape that has a distinctive proportional pattern of soils (fig. 2). It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of farming or other land use. Such a map is not suitable for planning management of a farm or field, because the soils in any one association ordinarily differ in slope, depth, drainage, and other characteristics that affect management.

The eight soil associations in Greene County are described in the following paragraphs.

1. Sharkey association

Poorly drained, level to undulating, clayey soils in slack-water areas

This association occupies wide slack-water areas on bottom lands. It makes up about 9 percent of the county. The soils formed in clayey alluvium and are level to undulating (fig. 3).

Sharkey soils make up about 75 percent of the association. Forestdale and Fountain soils make up about 20 percent, and Bruno and Bosket soils, on narrow ridges, make up the rest.

Sharkey soils are poorly drained. They have a surface layer of very dark gray to gray clay that is underlain by dark-gray to gray clay mottled with yellowish brown. These soils crack when dry and seal over when wet.

About two-thirds of this association is cultivated. The main crops are cotton, soybeans, corn, and small grain. The soils are productive but are difficult to till, and farm-

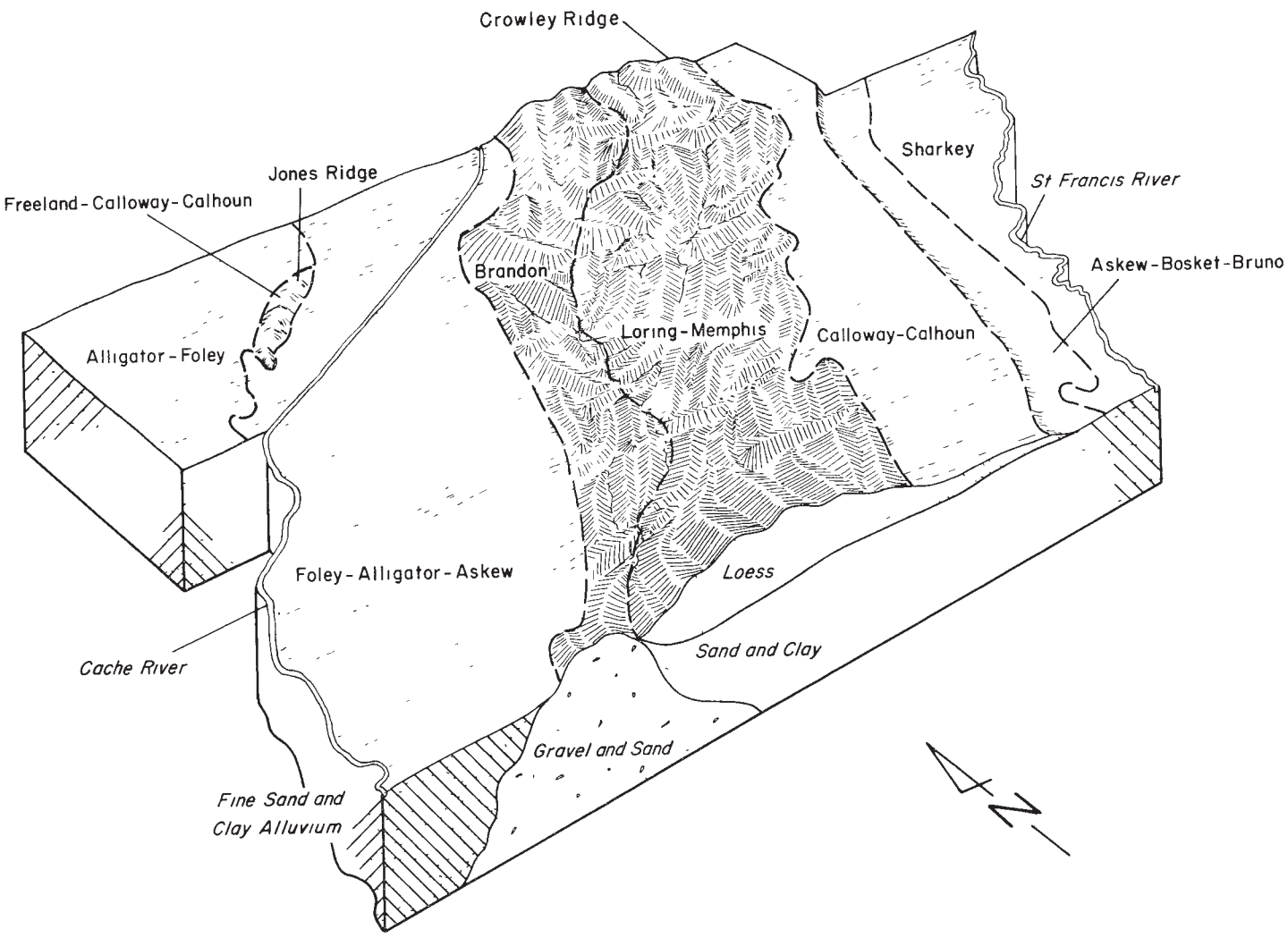

***Figure 2.*—Pattern of soils in Greene County.**

ing operations commonly have to be delayed because the soils are wet. Woodlands consist mainly of hardwoods and range from small patches to tracts several hundred acres in size. Part of this association is on the unprotected side of the levee along the St. Francis River and is subject to occasional overflow.

Farms average about 400 acres in size. About 80 percent of the farms are operated under rental agreements. Other farms are owner operated.

2. *Askew-Bosket-Bruno association*

Somewhat poorly drained to excessively drained, level to undulating, loamy and sandy soils on natural levees

This association, which makes up about 5 percent of the county, is on old natural levees along bayous and abandoned stream channels. It consists of long, narrow, shallow, parallel depressions separated by long, low ridges. The soils developed in loamy and sandy alluvium and are level to undulating.

Askew soils make up about 35 percent of the association, Bosket soils about 25 percent, and Bruno soils about 20 percent. The remaining 20 percent consists of small, scattered areas of Fountain, Sharkey, and Forestdale soils.

Askew soils are on the side slopes of low ridges and in the bottoms of depressions. They are somewhat poorly drained and are more loamy than Bosket and Bruno soils. Their surface layer is dark-brown to grayish-brown fine sandy loam. Their subsoil is dark yellowish-brown to yellowish-brown clay loam or silty clay loam mottled with grayish brown and gray.

Bosket soils are on natural levees and river terraces and are well drained. Their surface layer is very dark grayish-brown or dark-brown fine sandy loam, and their subsoil is reddish-brown, dark-brown, or dark yellowish-brown fine sandy loam, loam, or sandy clay loam.

Bruno soils are at higher elevations on the crest of natural levees and are excessively drained. Their surface layer is very dark grayish-brown to dark yellowish-brown loamy sand. It is underlain by yellowish-brown to dark yellowish-brown loamy sand or loamy fine sand.

Almost all of this association is cultivated. The main crops are cotton, soybeans, and small grain. The soils are easily tilled and are productive.

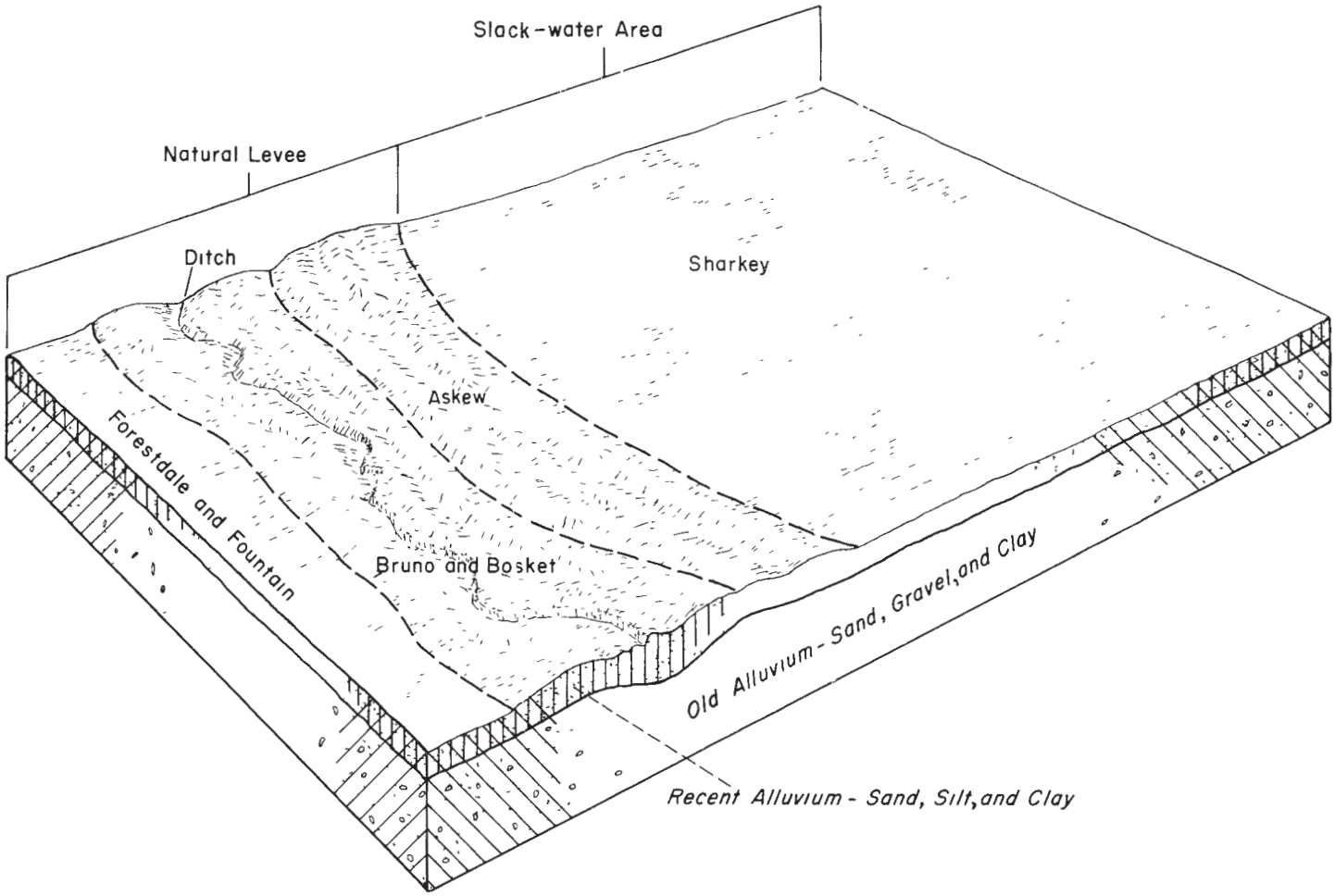

Figure 3.—**Generalized section of bottom lands along the St. Francis River, showing relationship of soils to parent material and topography.**

Farms average about 400 acres in size. About 80 percent of the farms are operated under rental agreements.

3. *Calhoun-Calloway association*

Poorly drained and somewhat poorly drained, level and nearly level soils that formed in a thick layer of silt

This association consists of wide flats that are drained by slow-flowing, intermittent streams and of low ridges that are from 4 to 10 feet higher than the flats. It is east of Crowley Ridge and makes up about 14 percent of the county.

Calhoun soils make up about 35 percent of this association, and Calloway soils about 30 percent. The rest is made up of scattered areas of Alligator, Foley, Falaya, and Collins soils.

Calhoun soils are poorly drained. They have a surface layer of dark-gray to grayish-brown silt loam. The subsoil is gray to grayish-brown silty clay loam mottled with yellowish brown.

Calloway soils are somewhat poorly drained. They have a surface layer of dark-brown to light brownish-gray silt loam. The subsoil is grayish-brown to light brownish-gray silty clay loam mottled with gray and dark yellowish brown. A mottled fragipan begins at a depth of 16 to 22 inches.

About 80 percent of this association is cultivated. The rest is in pasture or in small woodlots of hardwoods. The main crops are rice, soybeans, cotton, corn, small grain, grain sorghum, and some pasture plants. There are a few commercial fish farms.

The farms average about 100 acres in size. Nearly all are owner operated.

4. *Loring-Memphis association*

Moderately well drained and well drained, nearly level to steep soils that formed in a thick layer of silt

This association is on narrow, crooked ridgetops and on very irregular, strongly dissected hillsides. It occupies much of Crowley Ridge and makes up about 20 percent of the county (fig. 4).

Loring soils make up about 55 percent of this association and Memphis soils about 10 percent. Minor soils make up about 35 percent and consist of areas of Brandon and

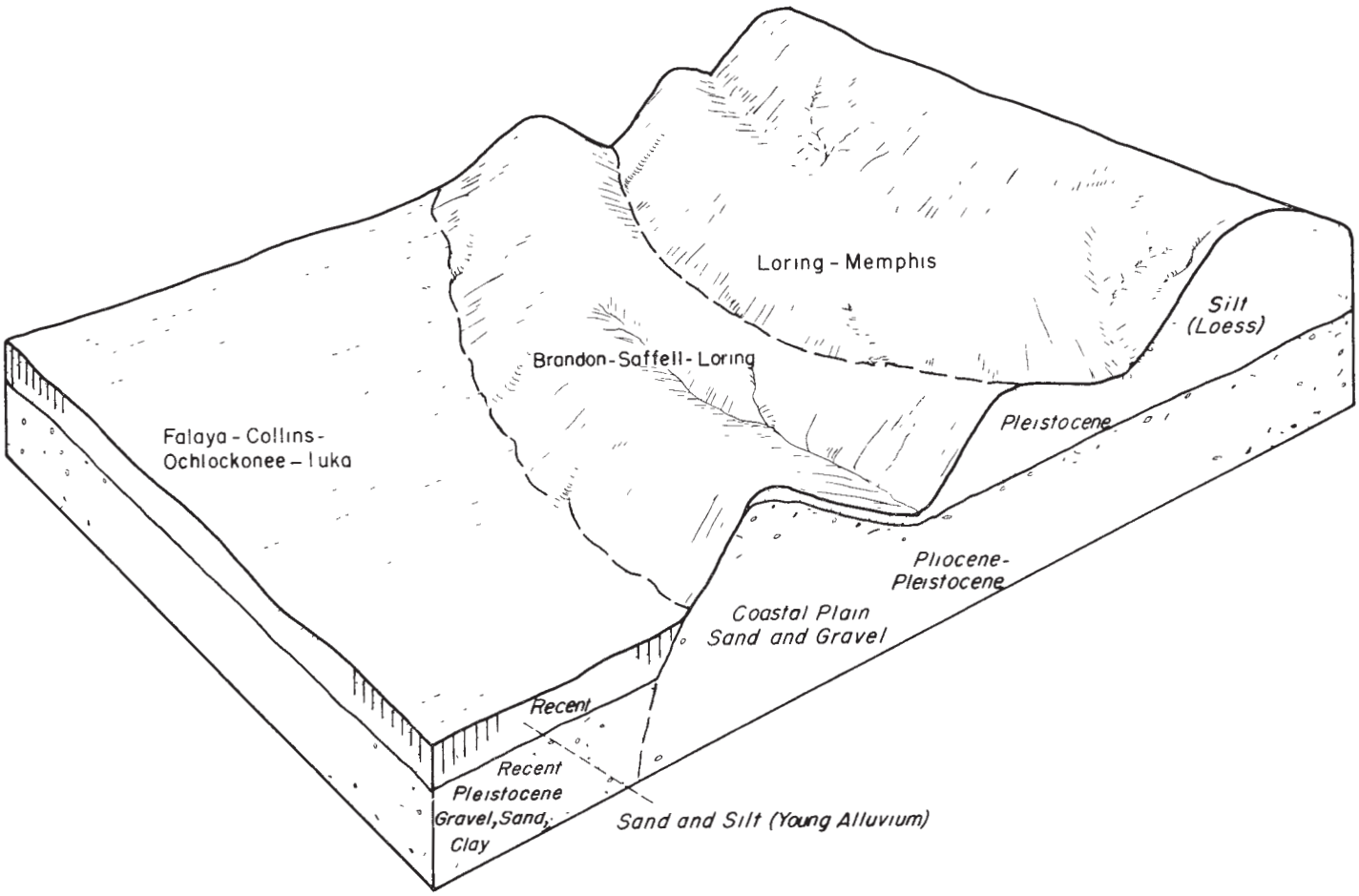

Figure 4.—**Generalized section of Crowley Ridge, showing relationship of soils to parent material and topography.**

Saffell soils and Gullied land on hillsides and of narrow, winding strips of Collins and Falaya soils on bottom lands along creeks.

Loring soils are moderately well drained. They have a surface layer of dark-brown, dark yellowish-brown, or brown silt loam. The subsoil is strong-brown to yellowish-brown silty clay loam. The lower part of the subsoil is a mottled gray and brown fragipan.

Memphis soils are well drained. They have a surface layer of dark-brown, brown, or dark grayish-brown silt loam. The subsoil is yellowish-brown to yellowish-red silty clay loam.

About 80 percent of this association is wooded. The rest is mostly in pasture. Farming is diversified. Cotton, corn, soybeans, and small grain are grown on some of the more nearly level soils, and there is enough pasture on some farms to support small herds of cattle. This association is well suited to livestock farming and to the production of timber. Most of it is only fairly well suited to intensive farming because of the slope and the serious hazard of erosion.

Farms average about 80 acres in size, and most are owner operated. Some farmers hold seasonal or part-time nonfarm jobs.

5. *Brandon association*

Well-drained, gently sloping to steep soils that formed in a thin layer of silt over gravelly and sandy material

This association, which occupies about 11 percent of the county, is on narrow, crooked ridgetops and very irregular, strongly dissected hillsides. The soils on ridgetops are nearly level to sloping, and those on hillsides are gently sloping to steep.

Brandon soils make up about 80 percent of this association. The remaining 20 percent consists of Loring, Memphis, and Saffell soils on hillsides and of Collins and Falaya soils on bottom lands along streams.

Brandon soils are well drained. They have a surface layer of brown to very dark grayish-brown silt loam or gravelly silt loam. The upper part of the subsoil is brown to reddish-brown and yellowish-red silty clay loam or clay loam that is gravelly in places. The lower part is yellowish-red to red, gravelly sandy loam to gravelly sandy clay loam. The content of gravel increases with depth.

For the most part, this association is wooded, idle, or in gravel pits. Some of the smoother areas are pastured, and a small acreage is used for row crops. Corn, soybeans, small grain, and annual lespedeza are the crops commonly grown. Small areas have been planted to shortleaf pine.

The soils are moderately productive but generally are unsuitable for cultivation because of the slope, the gravel content, and the hazard of erosion.

Farms average about 80 acres in size, and most are owner operated. Some farmers hold seasonal or part-time nonfarm jobs.

6. *Falaya-Collins association*

Somewhat poorly drained and moderately well drained, level soils that formed in silty alluvium

This association is on bottom lands along the west margin of Crowley Ridge. It occupies about 4 percent of the county. The soils consist of sediments washed from silty soils on the ridge.

Falaya soils make up about 45 percent of this association, and Collins soils make up about 35 percent. The rest consists mainly of Iuka and Ochlockonee soils.

Falaya soils are somewhat poorly drained. They have a surface layer of dark-brown to grayish-brown silt loam. Their subsoil is mottled grayish-brown, gray, and yellowish-brown silt loam.

Collins soils are moderately well drained. Their surface layer is dark-brown to dark grayish-brown silt loam. The underlying layer is dark brown or brown silt loam in the upper part and mottled shades of gray, brown, and yellow silt loam beginning at a depth of 18 to 20 inches.

Almost all of this association is cultivated. The soils are productive and are used mainly for cotton, soybeans, and small grain. Farms average about 200 acres in size, and nearly all are owner operated.

7. *Foley-Alligator-Askew association*

Poorly drained and somewhat poorly drained, level to undulating, loamy and clayey soils on low terraces

This association consists of wide, silty flats separated by low, narrow, sandy ridges. It occupies about 28 percent of the county.

Foley soils make up about 35 percent of the association, Alligator soils about 35 percent, and Askew soils about 7 percent. The remaining 23 percent consists of scattered areas of Bosket, Lafe, and Sharkey soils.

Foley soils are somewhat poorly drained. They have a surface layer of brown to dark-gray silt loam. The subsoil is grayish-brown, gray, or olive-gray mottled silty clay loam. It is acid to a depth of about 20 inches. Below this depth, it is neutral to moderately alkaline and is high in sodium content.

Alligator soils are poorly drained. They have a surface layer of very dark grayish-brown to grayish-brown silty clay loam. The underlying layer is gray, light brownish-gray, or grayish-brown silty clay or clay. Below is olive-gray or grayish-brown silty clay or clay. The soil commonly is strongly acid to very strongly acid. In places, below a depth of 20 to 30 inches, it is mildly alkaline or moderately alkaline and has a moderately high content of sodium and magnesium.

Askew soils are somewhat poorly drained. They have a surface layer of dark-brown to grayish-brown fine sandy loam. Their subsoil is dark yellowish-brown to yellowish-brown silty clay loam or clay loam mottled with shades of gray.

About 85 percent of this association is cultivated. Small wooded areas occur along stream channels and bayous. The soils are suited to farming and are fairly productive. The main crops are rice, soybeans, cotton, and small grain. Farms average about 200 acres in size, and most are owner operated.

8. *Alligator-Foley association*

Poorly drained and somewhat poorly drained, level and nearly level, loamy and clayey soils on low terraces

This association consists of wide flats that are drained by slow-flowing, intermittent streams and of low ridges that are from 1 to 3 feet higher than the flats. It is west of Crowley Ridge, near Delaplaine. It occupies about 9 percent of the county.

Alligator soils make up about 65 percent of the association, and Foley soils about 10 percent. The rest consists of scattered areas of Askew, Lafe, and Sharkey soils and of Calhoun, Calloway, and Freeland soils on Jones Ridge.

Alligator soils are poorly drained. They have a surface layer of very dark grayish-brown to grayish-brown silt loam or silty clay loam. The underlying layer is gray, light brownish-gray, or grayish-brown silty clay or clay. Below is olive-gray or grayish-brown silty clay or clay. The soil commonly is strongly acid to very strongly acid. In places, below a depth of 20 to 30 inches, it is mildly alkaline or moderately alkaline and has a moderately high content of sodium and magnesium.

Foley soils are somewhat poorly drained. They have a surface layer of brown to dark-gray silt loam. The subsoil is grayish-brown, gray, or olive-gray mottled silty clay loam. It is acid to a depth of about 20 inches. Below this depth, it is neutral to moderately alkaline and is high in content of sodium.

This association is within the major rice-producing area of the county. About 85 percent of the acreage is cleared. Small wooded areas occur along streams and bayous. The soils are productive and are suited to farming, although farming operations commonly have to be delayed because the soils are wet. Rice is the main crop, but soybeans, cotton, small grain, and some pasture plants are also grown. Farms average about 300 acres in size, and most are owner operated.

Descriptions of the Soils

In this section the soils of Greene County are described in detail. The procedure is to describe first the soil series, and then the mapping units in that series. Thus, to get full information on any one mapping unit, it is necessary to read both the description of that unit and the description of the soil series to which the unit belongs.

The description of the soil series includes a description of a profile that is considered representative of all the soils of the series. If the profile of a given mapping unit differs from this typical profile, the differences are stated in the description of the mapping unit, unless they are apparent from its name. The colors described are for moist soil, unless otherwise noted. Many of the more common terms used in describing soil series and mapping units are defined in the Glossary, and some are defined in the section "How This Survey Was Made."

The approximate acreage and proportionate extent of the soils are shown in table 1. At the back of the survey is

TABLE 1.—*Approximate acreage and proportionate extent of the soils*

Soil	Area	Extent
	Acres	*Percent*
Alligator silty clay loam, 0 to 1 percent slopes	29, 870	8. 1
Alligator silty clay loam, 0 to 1 percent slopes, alkali subsoil	28, 487	7. 7
Alligator silt loam, 1 to 3 percent slopes	2, 625	. 7
Askew fine sandy loam, 0 to 1 percent slopes	6, 788	1. 8
Askew fine sandy loam, gently undulating	4, 372	1. 2
Bosket fine sandy loam, 0 to 1 percent slopes	2, 720	7
Bosket fine sandy loam, gently undulating	5, 754	1 6
Bosket fine sandy loam, 3 to 8 percent slopes	594	. 2
Brandon silt loam, 1 to 3 percent slopes, eroded	1, 059	3
Brandon silt loam, 3 to 8 percent slopes, eroded	3, 883	1 0
Brandon silt loam, 8 to 12 percent slopes, eroded	4, 437	1 2
Brandon soils, 8 to 12 percent slopes	3, 810	1 0
Brandon soils, 12 to 20 percent slopes	20, 083	5 4
Brandon soils, 12 to 20 percent slopes, eroded	2, 306	. 6
Brandon soils, 20 to 40 percent slopes	1, 094	. 3
Bruno loamy sand	6, 334	1. 7
Calhoun silt loam	16, 174	4. 4
Calloway silt loam, 0 to 1 percent slopes	11, 618	3 1
Calloway silt loam, 1 to 3 percent slopes	4, 339	1. 2
Collins silt loam	29, 672	8 0
Falaya silt loam	33, 751	9 1
Foley complex, 0 to 1 percent slopes	35, 610	9 6
Foley complex, 1 to 3 percent slopes	4, 639	1 3
Forestdale silt loam	16, 811	4 5
Fountain silt loam	3, 955	1 1
Fountain clay loam	1, 058	3
Freeland silt loam, 1 to 3 percent slopes, eroded	352	. 1
Freeland silt loam, 3 to 8 percent slopes, eroded	700	. 2
Gullied land	489	. 1
Hillemann and Crowley silt loams	1, 522	. 4
Iuka loam	2, 489	. 7
Lafe silt loam	1, 188	. 3
Loring silt loam, 1 to 3 percent slopes, eroded	8, 528	2. 3
Loring silt loam, 3 to 8 percent slopes, eroded	13, 804	3 7
Loring silt loam, 3 to 8 percent slopes, severely eroded	8, 280	2 2
Loring silt loam, 8 to 12 percent slopes, eroded	6, 286	1 7
Loring silt loam, 8 to 12 percent slopes, severely eroded	4, 642	1 3
Loring and Memphis silt loams, 12 to 20 percent slopes	5, 946	1. 6
Memphis silt loam, 1 to 3 percent slopes, eroded	1, 966	. 5
Memphis silt loam, 3 to 8 percent slopes, eroded	830	. 2
Ochlockonee loam	2, 258	. 6
Saffell gravelly fine sandy loam, 12 to 20 percent slopes, eroded	2, 788	. 8
Sharkey clay	26, 200	7. 1
Open water	449	. 1
Total	370, 560	100 0

the "Guide to Mapping Units," which lists the mapping units in the county and shows the capability unit, the woodland group, and the wildlife group in which each mapping unit has been placed.

Alligator Series

The Alligator series consists of poorly drained soils on old clayey terraces that generally are from 3 to 10 feet higher in elevation than the backswamps. The slope ranges from 0 to 3 percent.

321-861—69——2

Representative profile of Alligator silty clay loam, 0 to 1 percent slopes, in a cultivated field, NW¼NW¼ NW¼ sec. 3, T. 18 N., R. 3 E.

Ap1—0 to 4 inches, very dark grayish-brown (10YR 3/2) silty clay loam; common, fine, distinct, yellowish-brown mottles; weak, fine, subangular blocky structure: firm; many fine roots; very strongly acid; abrupt, smooth boundary. 3 to 6 inches thick.

Ap2—4 to 11 inches, gray (10YR 6/1) clay; common, medium, distinct, yellowish-brown mottles; weak, medium, subangular blocky structure; firm; plastic; few roots; many old root channels stained with dark brown (10YR 3/3); very strongly acid; clear, wavy boundary. 4 to 7 inches thick

C1—11 to 32 inches, grayish-brown (2 5Y 5/2) clay, few, fine, distinct, yellowish-brown mottles; massive; very firm; plastic; common slickensides; few fine roots; few, medium, hard and soft, black concretions; some black stains along old root channels, very strongly acid; gradual, wavy boundary. 18 to 25 inches thick.

C2—32 to 47 inches, olive-gray (5Y 5/2) clay; massive; very firm: plastic; common slickensides, common, distinct, greenish-gray (5GY 5/1) stains along old root channels; few, small, hard, black concretions; very strongly acid, gradual, smooth boundary 8 to 15 inches thick

C3—47 to 76 inches, olive-gray (5Y 5/2) silty clay; common, fine, distinct, dark-brown mottles; massive; very firm; plastic; abundant, medium, hard and soft, black concretions; very strongly acid; abrupt, smooth boundary. 25 to 40 inches thick.

C4g—76 to 84 inches +, gray (5Y 6/1) silt loam; common, medium, distinct, dark-brown mottles; massive; friable; few light-gray (10YR 7/1) silt pockets; moderately alkaline

The Ap horizon ranges from silt loam to silty clay loam in texture and from very dark grayish brown (10YR 3/2) to grayish brown (10YR 5/2) in color. The C1 horizon is silty clay or clay. It ranges from gray (10YR 5/1, 6/1) or light brownish gray (10YR 6/2) to grayish brown (2 5Y 5/2) in color. The C2 and C3 horizons are olive gray (5Y 5/2) or grayish brown (2 5Y 5/2). The thickness of clayey horizons above the C4g horizon ranges from 5 to 8 feet. The reaction commonly is strongly acid or very strongly acid, but in places, below a depth of 20 to 30 inches, this soil is mildly alkaline or moderately alkaline and has a moderately high content of sodium and magnesium.

Alligator soils are associated mainly with Sharkey and Foley soils. They are more olive in color and are more strongly acid than Sharkey soils They are finer textured than Foley soils, which have an alkaline lower B horizon high in content of sodium and magnesium.

Alligator silty clay loam, 0 to 1 percent slopes (AgA).—This soil is in slight depressions on old terraces. The areas are 20 to 200 acres in size.

The surface layer is very dark grayish-brown to grayish-brown silty clay loam about 6 inches thick. It is underlain by grayish-brown clay or silty clay mottled with yellowish brown. Below this is olive-gray to grayish-brown, plastic clay or silty clay. Included in mapping were small areas of Foley and Sharkey soils, some spots of silt loam, and spots of soils that have an alkali subsoil.

This soil is strongly acid to very strongly acid. It is moderate in natural fertility and medium in organic-matter content. The available water capacity is moderate, and permeability is very slow. Runoff is slow or very slow and in places is ponded. Excess water is a severe hazard.

This soil is difficult to work and can be tilled within only a narrow range of moisture content. In areas where drainage is not provided, farming operations generally have to be delayed for several days after a rain. Adequately drained areas are suited to most crops commonly grown in the county and are especially well suited to rice. The re-

sponse to lime and fertilizer is good. (Capability unit IIIw–4; woodland group 12; wildlife group 5)

Alligator silty clay loam, 0 to 1 percent slopes, alkali subsoil (AlA).—This soil is in old, high, slack-water areas on bottom lands along the Cache River. The areas are 20 to 400 acres in size.

The surface layer is very dark grayish-brown to grayish-brown silty clay loam about 5 to 9 inches thick. It is underlain by gray to light brownish-gray clay or silty clay over grayish-brown or olive-gray, mottled clay or silty clay. Included in mapping were small areas of Foley and Sharkey soils and some spots in which the subsoil is strongly acid.

This soil is medium in organic-matter content and moderate in natural fertility. It is very strongly acid to strongly acid to a depth of 20 to 30 inches. Below this depth it is mildly alkaline or moderately alkaline and is moderately high in content of sodium and magnesium. The available water capacity is moderate, and permeability is very slow. Runoff is slow to ponded. Excess water is a severe hazard.

This soil cracks when dry and seals over when wet. It is difficult to work and can be tilled within only a narrow range of moisture content. In areas where drainage is not provided, planting and harvesting operations have to be delayed for several days after a rain. Adequately drained areas are suited to most crops commonly grown in the county and are well suited to rice. The response to lime and fertilizer is good. Occasionally, this soil is flooded for short periods, mainly in winter and in spring, but flooding does not seriously affect productivity or the choice of crops. (Capability unit IIIw–3; woodland group 12; wildlife group 5)

Alligator silt loam, 1 to 3 percent slopes (AmB).—This soil occurs as narrow strips bordering streams and escarpments. The areas are 10 to 40 acres in size.

The surface layer is very dark grayish-brown to grayish-brown silt loam about 5 inches thick. It is underlain by grayish-brown or olive-gray clay or silty clay mottled with greenish gray and yellowish brown. Included in mapping were spots of Foley soils, a few small areas of level soils, and spots of soils that have an alkali subsoil.

This soil is moderate in natural fertility, medium in organic-matter content, and strongly acid to very strongly acid. The available water capacity is moderate, permeability is very slow, and runoff is slow. Excess water is a severe hazard. Erosion is a slight hazard in the more sloping areas.

This soil is difficult to work and can be tilled within only a narrow range of moisture content. It is suited to most of the common crops and to rice. The response to lime and fertilizer is good. (Capability unit IIIw–4; woodland group 12; wildlife group 5)

Askew Series

The Askew series consists of somewhat poorly drained soils that formed in stratified beds of loamy alluvium on natural levees of the St. Francis and Cache Rivers and their tributaries. The slope ranges from 0 to 3 percent, and some areas are undulating.

Representative profile of Askew fine sandy loam, gently undulating, in a cultivated field.

Ap—0 to 6 inches, dark-brown (10YR 4/3) fine sandy loam; weak, fine, granular structure; very friable; many roots; slightly acid; abrupt, smooth boundary. 3 to 7 inches thick.

A1—6 to 11 inches, dark-brown (10YR 4/3) fine sandy loam; weak, fine, granular structure; very friable; many roots; few, medium, dark-colored concretions; medium acid; gradual, smooth boundary 3 to 7 inches thick.

B21t—11 to 22 inches, yellowish-brown (10YR 5/4) silty clay loam; common, medium, distinct, grayish-brown mottles; weak, medium, subangular blocky structure; firm; common, thin, patchy clay films on ped surfaces; few roots; few, medium, dark-colored concretions; medium acid; gradual, smooth boundary 8 to 15 inches thick.

B22t—22 to 31 inches, grayish-brown (10YR 5/2) silty clay loam; common, medium, distinct, yellowish-brown mottles, and few, fine, distinct, dark yellowish-brown mottles; weak, medium, subangular blocky structure; firm; common, thin, patchy clay films on ped surfaces; few, medium, dark-colored concretions; very strongly acid; gradual, wavy boundary 7 to 15 inches thick.

IIC1—31 to 50 inches, yellowish-brown (10YR 5/4) sandy loam; common, medium, distinct, gray mottles; massive; friable; few, coarse, dark-colored concretions; very strongly acid; gradual, smooth boundary 15 to 25 inches thick.

IIIC2—50 to 72 inches +, grayish-brown (10YR 5/2) sand; few, medium, distinct, yellowish-brown mottles; single grain; loose; medium acid.

The Ap horizon is dark-brown (10YR 4/3) to grayish-brown (10YR 5/2) fine sandy loam. The B21t horizon is yellowish brown (10YR 5/4) or dark yellowish brown (10YR 4/4) mottled with grayish brown or gray. The B22t horizon is grayish brown (10YR 5/2) or gray (10YR 5/1) mottled with yellowish brown. In places it is mottled with about equal amounts of shades of brown and gray. The texture of the Bt horizon is silty clay loam or clay loam. The A horizon is slightly acid to medium acid, and the B horizon is medium acid to very strongly acid.

Askew soils are associated with Bosket and Forestdale soils. They are more gray and more poorly drained than Bosket soils, and their surface layer is not so dark colored. They are browner, are better drained, and have a coarser textured B horizon than Forestdale soils.

Askew fine sandy loam, 0 to 1 percent slopes (AsA).—This soil occurs at intermediate elevations on natural levees and river terraces throughout the county. The areas are 30 to 100 acres in size.

The surface layer is dark-brown to grayish-brown fine sandy loam 6 to 11 inches thick. The subsoil is 18 to 25 inches of yellowish-brown to dark yellowish-brown silty clay loam or clay loam mottled with shades of gray and brown. Below this is sandy loam to sand mottled in shades of brown and gray. Included in mapping were small areas of silt loam and small areas of Bosket and Forestdale soils.

This soil is low in organic-matter content, moderate in natural fertility, and medium acid to very strongly acid. The available water capacity is moderate, permeability is moderately slow, and runoff is slow. In places a plowsole restricts the movement of water and the penetration of plant roots.

This soil warms up quickly and can be planted early in spring. It is suited to most of the crops commonly grown in the county. (Capability unit I–1; woodland group 1; wildlife group 4)

Askew fine sandy loam, gently undulating (0 to 3 percent slopes) (AsB).—This soil is on natural levees and river terraces throughout the county. It consists of long, narrow, parallel depressions, separated by low, short slopes of less than 3 percent. The areas are 20 to 60 acres in size.

The surface layer is dark-brown to grayish-brown fine sandy loam 6 to 11 inches thick. The subsoil is 18 to 25 inches of yellowish-brown or dark yellowish-brown silty clay loam or clay loam mottled with shades of gray and brown. Below this is sandy loam to sand mottled in shades of brown and gray. Included in mapping were small areas of Bosket and Forestdale soils.

This soil is low in organic-matter content, moderate in natural fertility, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. In places a plowsole restricts the movement of water and the penetration of plant roots. Runoff is slow, and excess water accumulates in the swales. Excess water is a moderate hazard.

This soil is suited to most of the crops commonly grown in the county. Unless drainage is provided, planting and harvesting may have to be delayed. (Capability unit IIw–3; woodland group 1; wildlife group 4)

Bosket Series

The Bosket series consists of well-drained soils that formed in thinly stratified beds of loamy alluvium on bottom lands of the St. Francis and Cache Rivers. These soils are on natural levees and river terraces bordering bayous and former river channels.

Representative profile of Bosket fine sandy loam, gently undulating, in a cultivated field, SE¼SE¼NE¼ sec. 11, T. 16 N., R. 6 E.

Ap—0 to 8 inches, dark-brown (10YR 3/3) fine sandy loam; weak, medium, granular structure; very friable; common fine roots; slightly acid; abrupt, smooth boundary. 7 to 12 inches thick

B21t—8 to 19 inches, dark-brown (7.5YR 3/2) fine sandy loam; weak, fine, subangular blocky structure; friable; common pores; few, thin, patchy clay films on ped faces and in pores; medium acid, clear, wavy boundary. 8 to 14 inches thick.

B22t—19 to 37 inches, dark-brown (7.5YR 4/4) sandy clay loam; weak, medium, subangular blocky structure; firm; common pores; common thin clay films on ped faces and in pores; strongly acid; gradual, wavy boundary. 16 to 30 inches thick.

B3—37 to 48 inches, dark-brown (7.5YR 4/4) sandy loam; weak, medium, subangular blocky structure; very friable; strongly acid; gradual, wavy boundary.

IIC—48 to 72 inches +, brown (10YR 4/3) loamy sand, structureless; loose; medium acid. 3 to 6 feet thick

The Ap horizon is very dark grayish-brown (10YR 3/2) or dark-brown (10YR 3/3) fine sandy loam In some areas there is a dark yellowish-brown (10YR 3/4) to yellowish-brown (10YR 5/4) A3 horizon of sandy loam or loam, 4 to 10 inches thick. The B2t horizon ranges from reddish-brown (5YR 4/4) through dark-brown (7.5YR 3/2) to dark yellowish-brown (10YR 4/4) or yellowish-brown (10YR 5/4, 5/6) sandy clay loam, loam, or fine sandy loam The B3 horizon is dark-brown (7.5YR 4/4) to yellowish-brown (10YR 5/4, 5/6) fine sandy loam, sandy loam, or loamy fine sand The C horizon is brown (10YR 5/3) or yellowish-brown (10YR 5/4) fine sandy loam, sandy loam, or loamy sand In places, there are few to common gray or grayish-brown mottles in the B3 and C horizons. The A horizon is slightly acid to medium acid, the B horizon is medium acid to strongly acid, and the C horizon is medium acid to slightly acid.

Bosket soils are associated mainly with Askew and Bruno soils. They differ from Askew soils in that they are coarser textured, are better drained, and are free of mottles in the B horizon They are finer textured than Bruno soils, and they have a B horizon, which is lacking in Bruno soils.

Bosket fine sandy loam, 0 to 1 percent slopes (BoA).—This soil is on high natural levees along the Cache and St. Francis Rivers. The areas are 20 to 60 acres in size.

The surface layer is very dark grayish-brown or dark-brown fine sandy loam 7 to 10 inches thick. The subsoil is dark yellowish-brown to yellowish-brown sandy clay loam. In some areas, beginning at a depth of about 30 inches, this material is mottled with shades of gray and brown. Included in mapping were small areas of Askew and Bruno soils and spots of soils in which mottling begins at a depth of less than 30 inches.

This soil is medium in organic-matter content, moderate in natural fertility, and medium acid to strongly acid. The available water capacity is moderate, and permeability is moderate. In places, a plowsole restricts the movement of water and the penetration of roots. Soil blowing is a slight hazard.

This soil is easy to work and can be tilled throughout a wide range of moisture content. It warms up quickly and can be planted early in spring. It is well suited to the common crops. The response to lime and fertilizer is good. (Capability unit I–1; woodland group 1; wildlife group 4)

Bosket fine sandy loam, gently undulating (0 to 3 percent slopes) (BoB).—This soil is on the higher parts of natural levees and river terraces along the St. Francis and Cache Rivers. It consists of long, narrow, parallel depressions between short slopes of less than 3 percent. The areas range from 20 to 80 acres in size.

The surface layer is very dark grayish-brown to dark-brown fine sandy loam 7 to 12 inches thick. In swales, this layer commonly is 1 to 3 inches thicker than on ridges and side slopes. The subsoil is dark-brown, yellowish-brown, or reddish-brown fine sandy loam, loam, or sandy clay loam. Below this is brown to dark yellowish-brown fine sandy loam, sandy loam, or loamy sand. Included in mapping were small areas of Bruno and Askew soils, spots of level soils, and small areas of soils that have a lighter colored surface layer or a silty clay loam subsoil.

This soil is moderate in natural fertility, medium in organic-matter content, and medium acid to strongly acid. The available water capacity is moderate, and permeability is moderate. Runoff is slow. In places a plowsole restricts the movement of water and the penetration of plant roots. Soil blowing and water erosion are moderate hazards in areas not protected by vegetation.

This soil is easy to work, and it can be tilled throughout a wide range of moisture content. It warms up quickly and can be planted early in spring. It is well suited to most of the crops commonly grown in the county. The response to lime and fertilizer is good. (Capability unit IIe-1; woodland group 1; wildlife group 4)

Bosket fine sandy loam, 3 to 8 percent slopes (BoC).—This soil is on ridges and mounds on bottom lands along the Cache River. The areas are 20 to 40 acres in size.

The surface layer is very dark grayish-brown fine sandy loam 7 to 10 inches thick. On the upper part of slopes, it generally is 1 to 3 inches thicker than on side slopes. The subsoil is dark-brown, yellowish-brown, or reddish-brown fine sandy loam, loam, or sandy clay loam. Below this is brown to dark yellowish-brown fine sandy loam, sandy loam, or loamy sand. Included in mapping were small areas of Bruno soils, and small areas of soils that have a lighter colored surface layer or a silty clay loam subsoil.

This soil is moderately low in natural fertility, moderately low in organic-matter content, and medium acid

to strongly acid. The available water capacity is moderate, and permeability is moderate. In places a plowsole restricts the movement of water and the penetration of plant roots. The hazard of erosion by wind and water is severe in areas not protected by vegetation.

This soil is easy to work, and it can be tilled throughout a wide range of moisture content. It warms up quickly and can be planted early in spring. It is well suited to most of the crops commonly grown in the county. The response to lime and fertilizer is good. (Capability unit IIIe-1; woodland group 1; wildlife group 4)

Brandon Series

The Brandon series consists of well-drained soils that formed in a thin mantle of wind-blown silt over gravelly Coastal Plain material. The slope ranges from 1 to 40 percent.

Representative profile of a Brandon silt loam in an area of Brandon soils, 8 to 12 percent slopes, SE¼SE¼SE¼ sec. 30, T. 17 N., R. 5 E.

A1—0 to 2 inches, very dark grayish-brown (10YR 3/2) silt loam; weak, medium, granular structure; very friable; many fine roots; medium acid; abrupt, wavy boundary. 1 to 3 inches thick.

A2—2 to 7 inches, brown (10YR 5/3) silt loam; weak, fine, subangular blocky structure; friable; some tonguing from A1 horizon; some gray coats on vertical ped faces; many fine roots; about 1 percent of volume is rounded chert gravel; very strongly acid; clear, wavy boundary. 4 to 6 inches thick.

B21t—7 to 10 inches, yellowish-red (5YR 4/6) silty clay loam; moderate, fine, subangular blocky structure; firm. medium clay films on most ped surfaces and lining pores; many roots; many fine pores and vertical channels; silt coats on many vertical ped surfaces; about 1 percent of volume is rounded chert gravel: very strongly acid; gradual, wavy boundary. 2 to 5 inches thick

B22t—10 to 15 inches, reddish-brown (5YR 4/4) silty clay loam; moderate, fine, subangular blocky structure; firm; common medium clay films on most ped surfaces and lining pores; about 1 percent of volume is rounded chert gravel; very strongly acid; gradual, wavy boundary. 3 to 6 inches thick.

B23t—15 to 35 inches, about equal amounts of yellowish-red (5YR 4/6) and reddish-brown (5YR 4/4) silty clay loam; weak, fine, subangular blocky structure; firm; thin clay films on some ped surfaces; about 2 percent of volume is rounded chert gravel; strongly acid; gradual, wavy boundary. 18 to 24 inches thick.

IIB3—35 to 50 inches +, yellowish-red (5YR 5/6) gravelly sandy loam; weak, fine, subangular blocky structure; friable; about 30 percent of volume is rounded chert gravel; strongly acid Several feet thick.

The thickness of the silty material ranges from 18 to 36 inches. The A horizon is silt loam or gravelly silt loam and ranges from very dark grayish brown (10YR 3/2) to brown (10YR 5/3) in color. The B horizon ranges from brown (10YR 5/3) to reddish brown (5YR 4/4) and yellowish red (5YR 4/6) in color and from silty clay loam to clay loam in texture. In places there is a IIB2t horizon of gravelly sandy clay loam. The IIB3 horizon ranges from yellowish red (5YR 5/6) to red (2.5YR 4/6) in color and from gravelly sandy loam to gravelly sandy clay loam in texture. In the silt loam type, the A and B horizons range from 0 to 10 percent in gravel content, and the IIB3 horizon ranges from 20 to 40 percent In the gravelly silt loam type, the A horizon ranges from 15 to 30 percent in gravel content, the B horizon from 25 to 40 percent, and the IIB3 horizon from 60 to 90 percent. The reaction ranges from slightly acid to strongly acid in the A horizon and from strongly acid to very strongly acid in the B horizon.

Brandon soils are associated with Loring, Memphis, and Saffell soils They differ mainly from Loring and Memphis soils in that those soils formed in a thicker layer of silt, lack the gravel content characteristic of Brandon soils, and are more silty and less sandy. They have a redder B horizon than Loring soils. Brandon soils have a more silty surface layer than Saffell soils, which formed in sandy and gravelly Coastal Plain material such as that which underlies Brandon soils.

Brandon silt loam, 1 to 3 percent slopes, eroded (BrB2).—This soil is on long, narrow ridgetops on Crowley Ridge. The areas are 15 to 20 acres in size.

The surface layer consists of 3 to 8 inches of dark grayish-brown to brown silt loam, and the subsoil is reddish-brown to yellowish-red silty clay loam or clay loam. Where fields have been plowed in recent years, the present plow layer includes some subsoil material. In some places there is little or no gravel in the soil material, and in others the gravel content is as much as 10 percent. Erosion has removed some of the original surface soil, and there are small patches where the subsoil is exposed. A few deep gullies and many small rills have formed. Included in mapping were small areas of Saffell and Loring soils, small areas of Brandon gravelly silt loam, and spots of an uneroded soil.

This soil is low in organic-matter content, low in natural fertility, and strongly acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. Erosion is a moderate hazard.

This soil is suited to most of the commonly grown crops and to pasture and meadow plants. The response to lime and fertilizer is moderate. (Capability unit IIe–2; woodland group 10; wildlife group 2)

Brandon silt loam, 3 to 8 percent slopes, eroded (BrC2).—This soil is on ridgetops and side slopes on Crowley Ridge. The areas are 20 to 30 acres in size.

The surface layer consists of 3 to 8 inches of dark grayish-brown to brown silt loam, and the subsoil is reddish-brown to yellowish-red silty clay loam or clay loam. Where fields have been plowed in recent years, the present plow layer includes some subsoil material. In some places there is little or no gravel in the soil material, and in others the gravel content is as much as 10 percent. Erosion has removed some of the original surface soil, and there are small patches where the subsoil is exposed. A few deep gullies and many small rills have formed. Included in mapping were small areas of Saffell and Loring soils, small areas of Brandon gravelly silt loam, and spots of an uneroded soil.

This soil is low in organic-matter content, low in natural fertility, and strongly acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. Erosion is a severe hazard.

This soil is suited to most of the commonly grown crops and to pasture and meadow plants. The response to lime and fertilizer is moderate. (Capability unit IIIe–2; woodland group 10; wildlife group 2)

Brandon silt loam, 8 to 12 percent slopes, eroded (BrD2).—This soil is on short slopes on Crowley Ridge. The areas are generally 20 to 40 acres in size.

The surface layer consists of 3 to 8 inches of dark grayish-brown to brown silt loam, and the subsoil is reddish-brown to yellowish-red silty clay loam or clay loam. Where fields have been plowed in recent years, the present plow layer includes some subsoil material. In some places there is little or no gravel in the soil material, and in others the gravel content is as much as 10 percent. Erosion has removed some of the original surface soil, and there are

small patches where the subsoil is exposed. A few deep gullies and many rills have formed. Included in mapping were small areas of Saffell and Loring soils, small areas of Brandon gravelly silt loam, and spots of an uneroded soil.

This soil is low in organic-matter content, low in natural fertility, and strongly acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. Erosion is a very severe hazard.

This soil is limited in suitability for row crops because of the slope. It is better suited to permanent pasture, woodland, and wildlife habitat. The response to lime and fertilizer is moderate. (Capability unit IVe–1; woodland group 10; wildlife group 2)

Brandon soils, 8 to 12 percent slopes (BsD).—This undifferentiated unit consists of Brandon silt loam and Brandon gravelly silt loam. It occurs as elongated areas, 20 to 100 acres in size, on side slopes on Crowley Ridge. Generally, Brandon silt loam makes up 40 to 70 percent of a mapped area, and Brandon gravelly silt loam 30 to 50 percent. Most of the acreage is in cutover forest that has never been cleared.

The surface layer is very dark grayish-brown to brown silt loam or gravelly silt loam. The subsoil is reddish-brown or yellowish-red silty clay loam, clay loam, gravelly silty clay loam, or gravelly clay loam. In Brandon silt loam, the gravel content ranges from little or none to as much as 10 percent in the surface layer and subsoil and to as much as 80 percent in the underlying material. In Brandon gravelly silt loam, the gravel content ranges from 15 to 30 percent in the surface layer, up to 50 percent in the subsoil, and to as much as 80 percent in the underlying material. Included in the areas mapped are spots of Saffell and Loring soils and a few scattered spots of an eroded soil.

These soils are low in organic-matter content, low in natural fertility, and strongly acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. Erosion is a very severe hazard.

These soils are poorly suited to row crops. They are better suited to pasture, woodland, or wildlife habitat. The response to lime and fertilizer is moderate. (Capability unit IVe–1; woodland group 10; wildlife group 2)

Brandon soils, 12 to 20 percent slopes (BsE).—This undifferentiated unit consists of Brandon silt loam and Brandon gravelly silt loam. It occurs as elongated areas, 20 to 100 acres in size, on side slopes on Crowley Ridge. Generally, Brandon silt loam makes up 40 to 70 percent of a mapped area, and Brandon gravelly silt loam 30 to 50 percent. Most of the acreage is in cutover forest that has never been cleared.

The surface layer is very dark grayish-brown to brown silt loam or gravelly silt loam. The subsoil is reddish-brown or yellowish-red silty clay loam, clay loam, gravelly silty clay loam, or gravelly clay loam. In Brandon silt loam, the gravel content ranges from little or none to as much as 10 percent in the surface layer and subsoil and to as much as 80 percent in the underlying material. In Brandon gravelly silt loam, the gravel content ranges from 15 to 30 percent in the surface layer, up to 50 percent in the subsoil, and to as much as 80 percent in the underlying material. Boulders of quartzite occur in some places. These are associated with a prominent outcrop of quartzite that covers about 5 acres. Included in the areas mapped are spots of Saffell and Loring soils and a few scattered spots of an eroded soil.

These soils are low in organic-matter content, low in natural fertility, and strongly acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. Erosion is a severe hazard.

The most suitable use for these soils is pasture, woodland, or wildlife habitat. The response to lime and fertilizer is moderate. (Capability unit VIe–1; woodland group 10; wildlife group 2)

Brandon soils, 12 to 20 percent slopes, eroded (BsE2).—This undifferentiated unit consists of Brandon silt loam and Brandon gravelly silt loam. These soils are on the side slopes of Crowley Ridge. The areas are 20 to 60 acres in size. Generally, Brandon silt loam makes up 40 to 70 percent of a mapped area, and Brandon gravelly silt loam 30 to 50 percent.

The surface layer is dark grayish-brown to brown silt loam or gravelly silt loam, and the subsoil is reddish-brown or yellowish-red silty clay loam, clay loam, gravelly silty clay loam, or gravelly clay loam. In Brandon silt loam, the gravel content ranges from little or none to as much as 10 percent in the surface layer and subsoil and to as much as 80 percent in the underlying material. In Brandon gravelly silt loam, the gravel content ranges from 15 to 30 percent in the surface layer, up to 50 percent in the subsoil, and to as much as 80 percent in the underlying material. Included in mapping were spots of Saffell and Loring soils and a few spots of an uneroded soil.

Erosion has removed some of the original surface soil, and there are patches where the subsoil is exposed. A few deep gullies have formed, and there are common to many shallow gullies. As most fields have been idle or in pasture for many years, the mixing of surface soil and subsoil is not obvious.

These soils are low in organic-matter content, low in natural fertility, and strongly acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. Erosion is a severe hazard.

The most suitable use for these soils is pasture, woodland, or wildlife habitat. (Capability unit VIe–1; woodland group 10; wildlife group 2)

Brandon soils, 20 to 40 percent slopes (BsF).—This undifferentiated unit consists of Brandon silt loam and Brandon gravelly silt loam. It occurs as elongated areas, 20 to 100 acres in size, on side slopes on Crowley Ridge. Generally, Brandon silt loam makes up 40 to 70 percent of a mapped area, and Brandon gravelly silt loam 30 to 50 percent. Most of the acreage is in cutover forest that has never been cleared.

The surface layer is very dark grayish-brown to dark-brown silt loam or gravelly silt loam. The subsoil is reddish-brown or yellowish-red silty clay loam, clay loam, gravelly silty clay loam, or gravelly clay loam. In Brandon silt loam, the gravel content ranges from little or none to as much as 10 percent in the surface layer and subsoil and to as much as 80 percent in the underlying material. In Brandon gravelly silt loam, the gravel content ranges from 15 to 30 percent in the surface layer, up to 50 percent in the subsoil, and to as much as 80 percent in the underlying material. Included in the areas mapped are small spots of Saffell and Loring soils, a few spots of an eroded soil, and small areas in which quartzite stones occur on the surface.

These soils are low in natural fertility, low in organic-matter content, and strongly acid to very strongly acid. The available water capacity is moderate, and per-

meability is moderately slow. Erosion is a very severe hazard.

The most suitable use for these soils is woodland and wildlife habitat. (Capability unit VIIe–1; woodland group 10; wildlife group 2)

Bruno Series

The Bruno series consists of excessively drained soils derived from coarse-textured alluvium deposited by the Mississippi River and a tributary, the St. Francis River. These soils are on natural levees bordering former river channels.

Representative profile of Bruno loamy sand in a cultivated field, SE¼SW¼NE¼ sec. 5, T. 16 N., R. 7 E.

Ap—0 to 8 inches, dark-brown (10YR 3/3) loamy sand; weak, fine and medium, granular structure; very friable; plentiful roots; slightly acid; clear, smooth boundary. 7 to 10 inches thick.

C1—8 to 21 inches, yellowish-brown (10YR 5/4) loamy sand; structureless; loose, few roots; slightly acid; diffuse boundary 10 to 15 inches thick

C2—21 to 52 inches, yellowish-brown (10YR 5/6) loamy sand; structureless; loose; slightly acid; diffuse boundary. 25 to 35 inches thick.

C3—52 to 72 inches +, yellowish-brown (10YR 5/4) sand; single grain; loose; medium acid. Several feet thick.

In color, the Ap horizon ranges from very dark grayish brown (10YR 3/2) to dark yellowish brown (10YR 3/4). The C horizon ranges from yellowish brown (10YR 5/4, 10YR 5/6) to dark yellowish brown (10YR 4/4). In texture, the C1 and C2 horizons are loamy sand or loamy fine sand The reaction is slightly acid or medium acid.

Bruno soils are associated mainly with Bosket soils. They lack the distinct B horizon of Bosket soils and are coarser textured. Horizonation in the Bruno soils is weak. It is expressed mainly as a difference in color resulting from an accumulation of organic matter in the A horizon and oxidation of iron in the C horizon.

Bruno loamy sand (0 to 3 percent slopes) (Bu).—This soil is on the higher parts of natural levees, on bottom lands along the St. Francis River. The areas are 10 to 80 acres in size.

The surface layer is very dark grayish-brown to dark yellowish-brown loamy sand 7 to 10 inches thick. It is underlain to a depth of about 50 inches by dark yellowish-brown to yellowish-brown loamy fine sand or loamy sand. Below this is yellowish-brown sand. Included in the areas mapped are spots of Bosket soils and soils that are like the Bruno soil except that they have gray mottles below a depth of about 24 inches. These soils make up as much as 20 percent of some areas.

This soil is slightly acid to medium acid. It is low in natural fertility and low in organic-matter content. Runoff is slow. Water moves rapidly into and through this soil except in areas where a plowsole has formed. The available water capacity is low. Roots readily penetrate the soil material. Droughtiness is a serious hazard. Soil blowing is a hazard in areas not protected by a growing crop or by crop residue.

This soil is easy to work, and it can be tilled throughout a wide range of moisture content. It warms up quickly and can be planted early in spring. It is fairly well suited to most common crops but is better suited to cool-season crops, such as small grain. The response to lime and fertilizer is good. (Capability unit IIIs–1; woodland group 3; wildlife group 4)

Calhoun Series

The Calhoun series consists of poorly drained soils that formed in a thick layer of silt.

Representative profile of Calhoun silt loam in a wooded area, NW¼NW¼NE¼ sec. 15, T. 17 N., R. 6 E.

A1—0 to 4 inches, grayish-brown (10YR 5/2) silt loam; weak, fine, granular structure; very friable; common, fine and coarse roots; few pores; medium acid; abrupt, smooth boundary. 3 to 7 inches thick

A21—4 to 9 inches, grayish-brown (2.5Y 5/2) silt loam, few, medium, distinct, yellowish-brown mottles; weak, medium, subangular blocky structure; very friable; common roots; few, fine, hard, dark-colored concretions, strongly acid, clear, smooth boundary 4 to 6 inches thick.

A22g—9 to 16 inches, gray (10YR 6/1) silt loam; common, fine and medium, distinct, light olive-brown mottles; weak, coarse, subangular blocky structure; very friable; common roots; few pores; few, small, hard, dark-colored concretions: very strongly acid; clear. irregular boundary. 0 to 10 inches thick.

B&Ag—16 to 24 inches, gray (10YR 6/1) silty clay loam; common, fine and medium, prominent, light olive-brown mottles; moderate, medium, subangular blocky structure; firm, brittle; thin clay films on some peds; few roots; few pores; common tongues of massive, friable, light-gray (10YR 7/1) silt ½ inch to 1½ inches in diameter; light-gray (10YR 7/1) silt coating on some peds; common, fine, hard, dark-colored concretions; very strongly acid; gradual, wavy boundary. 7 to 12 inches thick

B2tg—24 to 38 inches, grayish-brown (10YR 5/2) silty clay loam; common, medium and fine, distinct, yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; brittle, common thin clay films on peds; few roots; cracks filled with light-gray (10YR 7/1) silt; very strongly acid; gradual, wavy boundary. 12 to 16 inches thick.

B3g—38 to 50 inches, grayish-brown (10YR 5/2) silt loam; common, medium and fine, distinct, yellowish-brown mottles; moderate, medium, subangular blocky structure, friable; few root channels filled with gray (10YR 7/1) silt; very strongly acid; gradual, wavy boundary. 10 to 15 inches thick

C1g—50 to 64 inches, grayish-brown (10YR 5/2) silt loam; common, medium, distinct, yellowish-brown mottles; weak, medium, subangular blocky structure; friable; slightly acid; diffuse boundary. 10 to 16 inches thick.

C2g—64 to 72 inches +, mottled gray (10YR 6/1), yellowish-brown (10YR 5/4), and grayish-brown (10YR 5/2) silt loam; friable; many, medium, soft, black concretions; mildly alkaline

The A1 horizon ranges from dark gray (10YR 4/1) to grayish brown (10YR 5/2); the Ap horizon, from dark grayish brown (10YR 4/2) to grayish brown (10YR 5/2); and the A2g horizon, from grayish brown (10YR 5/2) to gray (10YR 6/1). The B&Ag horizon begins at a depth of 7 to 16 inches and is gray (10YR 6/1) or light brownish gray (10YR 6/2). Tongues of gray silt range from few to many and from ½ inch to 1½ inches in diameter and average 1 inch in diameter. The B2tg horizon begins at a depth of 14 to 24 inches and is light brownish gray (10YR 6/2), gray (10YR 6/1), or grayish brown (2.5YR 5/2). The B3g horizon ranges from grayish brown (10YR 5/2) to gray (10YR 6/1) The A horizon is medium acid to very strongly acid, the B horizon is medium acid to very strongly acid, and the lower part of the C horizon is slightly acid to mildly alkaline

Calhoun soils are associated with Calloway and Falaya soils and in places with Hillemann and Crowley soils They are grayer and more poorly drained than those soils, and their B horizon is strongly tongued, a characteristic that is lacking in the associated soils They also differ from the associated soils in that Calloway soils have a well-expressed fragipan; Falaya soils formed in more recent alluvium and have weakly expressed horizons; Crowley soils have reddish mottles and more clay in the upper part of the subsoil; and

Hillemann soils have a high concentration of sodium and magnesium in the lower part of the subsoil.

Calhoun silt loam (0 to 1 percent slopes) (Ca)—This soil is in nearly flat areas or depressions on Crowley Ridge and the adjoining loessal plain. The areas are 20 to 80 acres in size.

The surface layer is dark-gray to grayish-brown silt loam 7 to 14 inches thick. The subsoil is gray to grayish-brown silty clay loam mottled with yellowish brown. Below this is gray or grayish-brown silt loam mottled with yellowish brown. Small areas of Calloway and Falaya soils were included in mapping.

This soil is low in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is slow. Runoff is slow to very slow, and some areas are ponded. Excess water is a severe hazard.

If adequately drained and otherwise carefully managed, this soil is suited to most of the common crops. In undrained areas, farming operations commonly have to be delayed for several days after a rain. The response to lime and fertilizer is good. (Capability unit IIIw-5; woodland group 9; wildlife suitability group 1)

Calloway Series

The Calloway series consists of somewhat poorly drained soils that formed in a thick layer of silt. These soils are mainly on and adjacent to Crowley Ridge. The slope ranges from 0 to 3 percent.

Representative profile of Calloway silt loam, 0 to 1 percent slopes, in a cultivated field, SE¼SE¼SE¼ sec. 1, T. 18 N., R. 6 E.

Ap—0 to 8 inches, dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; abundant roots; few pores; slightly acid; abrupt, smooth boundary 4 to 10 inches thick.

B2g—8 to 19 inches, light brownish-gray (10YR 6/2) silt loam, common, fine, distinct, brownish-yellow mottles, and few, fine, distinct, dark yellowish-brown mottles; moderate, medium, subangular blocky structure; friable; few roots; few pores; few, small, hard, dark-colored concretions; strongly acid; gradual, smooth boundary 8 to 12 inches thick.

A'2xg—19 to 25 inches, light-gray (10YR 7/1) silt loam; common, medium, distinct, yellowish-brown mottles; weak, medium, subangular blocky structure; friable; somewhat brittle; compact; few roots; few pores; few, small, hard, dark-colored concretions; very strongly acid; clear, smooth boundary. 5 to 10 inches thick.

B'x1g—25 to 32 inches, grayish-brown (10YR 5/2) silty clay loam; common, medium and coarse, distinct, yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; compact; brittle; thin clay films on most ped surfaces; gray silt on some ped surfaces; common, medium and fine, hard, dark-colored concretions; very strongly acid; gradual, wavy boundary. 6 to 10 inches thick.

B'x2g—32 to 41 inches, gray (10YR 6/1) silty clay loam; common, medium, distinct, yellowish-brown mottles, moderate, medium, subangular blocky structure; compact; brittle; thin clay films on most ped surfaces; common, small, hard, dark-colored concretions; very strongly acid; gradual, smooth boundary. 8 to 12 inches thick.

B3—41 to 55 inches, mottled light-gray (10YR 7/1) and yellowish-brown (10YR 5/4) silt loam; weak, medium, subangular blocky structure; friable; few, medium, hard, dark-colored concretions; medium acid; gradual, wavy boundary. 10 to 16 inches thick

C1g—55 to 70 inches, gray (10YR 6/1) silt loam; common, medium, distinct, yellowish-brown mottles; massive; friable; common, medium, soft, brown concretions; organic stains on some peds; few silt pockets; mildly alkaline; gradual, smooth boundary. 10 to 20 inches thick

C2g—70 to 84 inches +, light yellowish-brown (10YR 6/4) silt loam; few, medium, faint, yellowish-brown mottles; few, fine, black concretions; gray silt on some peds; moderately alkaline. 2 to 4 feet thick

The Ap horizon ranges from dark brown (10YR 4/3) to light brownish gray (10YR 6/2) in color. The A'2x horizon begins at a depth of 16 to 22 inches and ranges from gray (10YR 6/1) to light gray (10YR 7/1) in color. The B'x horizon is 16 to 48 inches thick and ranges from gray (10YR 6/1) to light brownish gray (10YR 6/2) or grayish brown (10YR 5/2). Mottles range from brown (10YR 5/3) to yellowish brown (10YR 5/6) and from common to many. The A horizon is slightly acid to medium acid, the B horizon is strongly acid to very strongly acid, and the C horizon is medium acid to moderately alkaline.

Calloway soils are associated with Loring, Calhoun, Hillemann, and Crowley soils. They have a more strongly developed fragipan, are grayer, and are mottled nearer the surface than Loring soils. They are not so gray as the poorly drained Calhoun soils, and they have a fragipan, which is lacking in Calhoun soils. They differ from Hillemann and Crowley soils mainly in that those soils lack a fragipan and have a more reddish B horizon. Also Hillemann soils have a high concentration of sodium and magnesium in the lower part of the subsoil.

Calloway silt loam, 0 to 1 percent slopes (CIA)—This soil is on broad flats and low ridges on the loessal plain adjacent to Crowley Ridge. The areas are 40 to 100 acres in size.

The surface layer is dark-brown to light brownish-gray silt loam 4 to 10 inches thick. The subsoil is grayish-brown to light brownish-gray silty clay loam mottled with gray and yellowish brown. A gray and yellowish-brown, mottled fragipan begins at a depth of 16 to 22 inches and is 16 to 48 inches thick. Included in mapping were small areas of Calhoun, Falaya, and Loring soils.

This soil is low in natural fertility, low in organic-matter content, and strongly acid to very strongly acid. Permeability is slow, and runoff is also slow. The available water capacity is moderate to low, depending on the depth to the fragipan. The fragipan restricts the movement of water and the penetration of plant roots. Excess water is a moderate hazard.

This soil is easy to work, and it can be tilled throughout a moderate range of moisture content. If adequately drained and otherwise well managed, it is well suited to most of the common crops. Planting and harvesting operations may have to be delayed in areas where drainage is not provided. The response to lime and fertilizer is good. (Capability unit IIw-1; woodland group 5; wildlife group 1)

Calloway silt loam, 1 to 3 percent slopes (CIB).—This soil is on low ridges on the loessal plain adjacent to Crowley Ridge. The areas are 10 to 20 acres in size.

The surface layer is dark-brown to light brownish-gray silt loam 4 to 8 inches thick. The subsoil is grayish-brown to light brownish-gray silty clay loam mottled with gray and yellowish brown. A gray and yellowish-brown fragipan begins at a depth of 16 to 22 inches and is 16 to 48 inches thick. Included in mapping were a few small areas of Calhoun and Loring soils.

This soil is low in natural fertility, low in organic-matter content, and strongly acid to very strongly acid. Permeability is slow, and runoff is also slow. The available

water capacity is moderate to low, depending on the depth to the fragipan. The fragipan restricts the movement of water and the penetration of plant roots. Excess water is a moderate hazard, and erosion is a slight hazard on long slopes. Leveling operations are difficult in areas where cuts must be limited in depth because of the fragipan.

If well managed, this soil is suited to most crops commonly grown in the county. Planting and harvesting operations may have to be delayed in areas where drainage is not provided. The response to lime and fertilizer is good. (Capability unit IIw–1; woodland group 5; wildlife group 1)

Collins Series

The Collins series consists of moderately well drained soils that formed in sediments washed from loessal soils. These soils are along local streams within Crowley Ridge and in level areas adjacent to the ridge.

Representative profile of Collins silt loam in a cultivated field, NE¼SW¼SW¼ sec. 18, T. 17 N., R. 5 E.

Ap—0 to 6 inches, dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; few fine roots; medium acid, abrupt, smooth boundary. 4 to 8 inches thick

A1—6 to 15 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, subangular blocky structure; friable; few roots; strongly acid; clear, wavy boundary. 8 to 14 inches thick.

C1—15 to 25 inches, dark-brown (10YR 4/3) silt loam; few, fine to medium, faint, brown and grayish-brown mottles in lower 5 inches; weak, fine, subangular blocky structure; friable; strongly acid; gradual, wavy boundary 8 to 14 inches thick.

C2g—25 to 72 inches +, light-gray (10YR 7/1) silt loam; common, medium, distinct, very pale brown and dark yellowish-brown mottles; weak, fine, subangular blocky structure; friable; few fine, soft, dark-colored concretions; very strongly acid. 2 to 6 feet thick

The Ap horizon is dark brown (10YR 4/3) or dark grayish brown (10YR 4/2) In places the C1 horizon is brown (10YR 5/3). The C2g horizon ranges from gray (10YR 5/1) to light gray (10YR 7/1). The depth to mottling ranges from 18 to 28 inches The reaction is from medium acid to very strongly acid

Collins soils are associated with Falaya soils They differ from those soils in that they are mottled below a depth of about 24 inches, whereas Falaya soils are mottled within 6 inches of the surface and are grayer.

Collins silt loam (0 to 1 percent slopes) (Co).—This soil is along streams on Crowley Ridge and on loessal plains adjacent to the ridge. The areas are 10 to 50 acres in size.

The surface layer is dark-brown to dark grayish-brown silt loam 4 to 8 inches thick. It is underlain to a depth of 18 to 28 inches by brown or dark-brown silt loam. Below this is silt loam mottled in shades of gray, yellow, and brown. Included in mapping were spots of Falaya soils, spots of sandy overwash, and soils in which the lower layers are sandy.

This soil is moderate to moderately low in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, permeability is moderate, and runoff is slow. Occasional floods of short duration normally occur in winter and early in spring but do not seriously affect production or the choice of crops.

This soil is easy to work, and it can be tilled throughout a fairly wide range of moisture content. It is suited to most of the crops commonly grown in the county. The response to lime and fertilizer is good. (Capability unit I–1; woodland group 2; wildlife group 4)

Crowley Series

The Crowley series consists of level or nearly level, poorly drained soils that formed in silt over finer textured sediments. Crowley soils in Greene County are mapped as an undifferentiated unit with Hillemann soils. Most areas are southwest of Walcott.

Representative profile of a Crowley silt loam, 0 to 1 percent slopes, SW¼SW¼NW¼ sec. 13, T. 16 N., R. 3 E.

Ap—0 to 5 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure, friable, abundant roots; medium acid, abrupt, smooth boundary 4 to 8 inches thick.

A2g—5 to 13 inches, light brownish-gray (10YR 6/2) silt loam; common, fine, distinct, yellowish-brown and brownish-yellow mottles, weak, fine, granular structure, friable; common roots; common, small, dark-colored concretions; strongly acid; abrupt, smooth boundary 6 to 10 inches thick

B21tg—13 to 22 inches, gray (10YR 5/1) silty clay; many, medium, prominent, yellowish-red mottles; moderate, medium, angular blocky structure; very firm; some peds coated with light-gray (10YR 7/1) silt; few roots; common patchy clay films, few, small dark-colored concretions; very strongly acid; clear, wavy boundary. 6 to 12 inches thick

B22t—22 to 47 inches, grayish-brown (10YR 5/2) silty clay loam; common, medium, distinct, yellowish-brown mottles, moderate, medium, subangular blocky structure; firm; black stains on ped surfaces, few roots, common, small, dark-colored concretions medium acid; gradual, smooth boundary 20 to 30 inches thick.

B3—47 to 60 inches +, pale-brown (10YR 6/3) silt loam; common, fine and medium, distinct, yellowish-brown mottles; weak, medium, subangular blocky structure; friable; common, small, dark-colored concretions; slightly acid; more than 2 feet thick.

The Ap horizon is dark grayish brown (10YR 4/2) to brown (10YR 5/3) and normally is free of mottles. The A2 horizon is light brownish gray (10YR 6/2) or grayish brown (10YR 5/2). The B21tg horizon is gray (10YR 5/1 or 10YR 6/1) silty clay or heavy silty clay loam The B22t horizon is light brownish gray (10YR 6/2), grayish brown (10YR 5/2), or gray (10YR 5/1 or 10YR 6/1) in color and ranges from silty clay loam to light silty clay in texture. The B3 horizon is grayish-brown (10YR 5/2), brown (10YR 5/3), light brownish-gray (10YR 6/2), or pale-brown (10YR 6/3) silt loam or silty clay loam. The A horizon is slightly acid to strongly acid, the B2 horizon is medium acid to very strongly acid, and the B3 horizon is medium acid to slightly acid.

Crowley soils are associated mainly with Hillemann soils. They are grayer and have a higher clay content in the B horizon than Hillemann soils, and they have an abrupt boundary between the A and B horizons Crowley soils lack the high content of sodium and magnesium in the lower part of the B horizon that is typical of Hillemann soils.

Falaya Series

The Falaya series consists of level, somewhat poorly drained soils derived from sediments washed from loessal soils. These soils are on Crowley Ridge and on the loessal plain adjacent to the ridge.

Representative profile of Falaya silt loam in a cultivated field, SE¼SE¼SE¼ sec. 32, T. 19 N., R. 7 E.

Ap—0 to 6 inches, dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; plentiful roots; few, fine, hard and soft concretions; strongly acid; abrupt, smooth boundary 5 to 7 inches thick

B1—6 to 16 inches, mottled grayish-brown (10YR 5/2) and dark-brown (10YR 4/3) silt loam; weak, fine, subangular blocky structure; friable, plentiful roots, common pores, few, fine, hard and soft concretions, strongly acid, clear, wavy boundary 8 to 12 inches thick.

B21—16 to 26 inches, light brownish-gray (10YR 6/2) silt loam; common, fine, distinct, yellowish-brown mottles, and common, medium, distinct, dark-brown mottles, weak, medium, subangular blocky structure; friable, few roots, common pores, few, fine and medium, soft, dark-colored concretions, very strongly acid; gradual, smooth boundary 8 to 12 inches thick.

B22g—26 to 33 inches, light-gray (10YR 7/1) silt loam; common, medium, distinct, yellowish-brown mottles, and common, medium, distinct, dark yellowish-brown mottles; weak, medium, subangular blocky structure, few, medium, soft, dark-colored concretions; very strongly acid; gradual, wavy boundary 5 to 10 inches thick.

B23g—33 to 72 inches +, light-gray (10YR 7/2) silt loam; common, medium, distinct, yellowish-brown mottles, weak, medium, subangular blocky structure; friable; many, fine and medium, soft, dark-colored concretions, strongly acid 3 to 10 feet thick

The Ap horizon ranges from dark brown (10YR 4/3) to grayish brown (10YR 5/2) in color, the B1 and B21 horizons from light brownish gray (10YR 6/2) to grayish brown (10YR 5/2), and the B2g horizon from gray (10YR 5/1) to light gray (10YR 7/2) The depth to the B2 horizon ranges from 12 to 18 inches In structure, the B2 horizon ranges from weak to moderate Mottles begin at a depth of 6 to 16 inches and are light gray (10YR 7/1), yellowish brown (10YR 5/4), dark brown (10YR 4/3), and brown (10YR 5/3) The A horizon ranges from slightly acid to strongly acid, and the B horizon from strongly acid to very strongly acid

Falaya soils are associated mainly with Collins soils They differ from those soils mainly in being more poorly drained, grayer, and mottled nearer the surface

Falaya silt loam (0 to 1 percent slopes) (Fa).—This soil is on bottom lands along streams that drain Crowley Ridge. The areas are 10 to 100 acres in size.

The surface layer is dark-brown to grayish-brown, friable silt loam about 5 to 7 inches thick. It is underlain to a depth of about 30 inches by mottled grayish-brown, gray, and yellowish-brown silt loam. Below this is light-gray silt loam mottled with yellowish brown. Included in some of the areas mapped are small spots of Collins, Calloway, Calhoun, Iuka, and Ochlockonee soils.

This soil is low to moderately low in natural fertility, low to moderately low in organic-matter content, moderate in available water capacity, and strongly acid to very strongly acid. It is readily penetrated by both roots and moisture. Runoff is slow, and the subsoil commonly is waterlogged in spring. Excess water is a moderate hazard.

This soil is easy to work, and it can be tilled throughout a wide range of moisture content. It is suited to most of the crops commonly grown in the county. Planting and harvesting may be delayed in areas where surface drains are not provided. Occasional floods of short duration occur mainly in winter and early in spring but do not seriously affect production or the choice of crops. The response to lime and fertilizer is good. (Capability unit IIw-3; woodland group 8; wildlife group 4)

Foley Series

The Foley series consists of somewhat poorly drained loamy soils. These soils are acid in the upper part of the B horizon and alkaline in the lower part. The lower part of the B horizon is high in content of sodium and magnesium.

Representative profile of a Foley silt loam, 0 to 1 percent slopes, in a cultivated field, NE¼SE¼SE¼ sec. 4, T. 18 N., R. 7 E.

Ap—0 to 7 inches, brown (10YR 5/3) silt loam; few, medium, faint, grayish-brown mottles; weak, medium, granular structure; weak, coarse, platy structure (plowsole) in lower 1 inch; friable; abundant fine roots: few, medium, hard, dark-colored concretions, strongly acid; abrupt, smooth boundary

A2—7 to 12 inches, grayish-brown (10YR 5/2) silt loam, many, medium, distinct, dark yellowish-brown mottles; weak, medium, subangular blocky structure, near massive; friable; slightly brittle; abundant fine roots; few worm tunnels filled with casts; common medium pores; common, fine, soft, dark-brown concretions, very strongly acid; clear, wavy boundary

B1g—12 to 21 inches, grayish-brown (2.5Y 5/2) silt loam; common, medium, distinct, strong-brown mottles; common fine pockets of light gray (2.5Y 7/2), weak, medium, subangular blocky structure; friable; thin, patchy clay films lining tubules and vesicles; few fine roots; abundant, fine and medium pores; common, fine, soft, dark-brown concretions; medium acid; clear, wavy boundary

B21tg—21 to 26 inches, gray (5Y 6/1) silty clay loam; common, medium, distinct, light olive-brown and yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; thick, patchy clay films on most ped faces and lining crevices and pores; films on some ped faces masked by streaks of light-gray silt; common, fine, soft, dark-brown concretions with aureoles of strong brown, slightly acid, gradual, wavy boundary

B22t—26 to 34 inches, mottled, light brownish-gray (2.5Y 6/2) and brown (10YR 5/3) silty clay loam; common vertical seams filled with light-gray silt; moderate, medium, subangular blocky structure; firm, common, medium, patchy clay films on ped faces and lining most pores; some pores plugged with light-gray silt; few fine roots; abundant, fine and medium pores; common, fine, soft, dark-colored concretions and occasional, irregular masses of soft concretionary material along cracks, moderately alkaline; gradual, wavy boundary

B23t—34 to 49 inches +, light brownish-gray (2.5Y 6/2) silty clay loam; many, medium, faint, grayish-brown mottles, and common, fine, distinct, dark yellowish-brown mottles; weak, medium, subangular blocky structure; firm; thin and medium clay films on ped faces, but films on some ped faces masked with light-gray silt, medium, continuous clay films lining pores and vesicles; common, medium, tubular pores, some clogged with clay; common, fine, medium and coarse, soft, dark-brown concretions; strongly alkaline

The Ap horizon is dark gray (10YR 4/1), dark grayish brown (10YR 4/2), dark brown (10YR 4/3), grayish brown (10YR 5/2), or brown (10YR 5/3). The B21tg horizon ranges from gray (10YR 5/1 or 5Y 5/1) to grayish-brown (10YR 5/2) The texture is silt loam or silty clay loam The B22t and B23t horizons are grayish brown (10YR 5/2 or 2.5Y 5/2), gray (5Y 5/1 or 10YR 5/1), light brownish gray (2.5Y 6/2), or olive gray (5Y 5/2) In some places there are a few concretions in the soil material, and in other places there are many The depth to the alkaline layer ranges from 15 to 32 inches The A horizon and the upper part of the B horizon range from very strongly acid to slightly acid, and the lower part of the B horizon ranges from neutral to strongly alkaline

Foley soils are associated with Alligator, Fountain, and Lafe soils. They are coarser textured than Alligator soils, which commonly are strongly acid throughout. They differ from Fountain and Lafe soils in that Fountain soils lack the high content of sodium and magnesium in the lower part of their B horizon, and Lafe soils are high in content of sodium and magnesium, commonly within a few inches of the surface

Foley complex, 0 to 1 percent slopes (FcA).—This complex is on benches along both sides of Crowley Ridge. The areas are 10 to 400 acres in size. The Foley soil makes up about 40 to 50 percent of an area, and Fountain and Lafe soils each make up about 15 to 25 percent. About 10 to 20 percent consists of inclusions of Askew and Alligator soils; of soils that are like the Fountain soil, except that they are acid in the upper part of the subsoil; and of soils that are like the Lafe soil, except that their subsoil is mostly gray.

The Foley soil has a 4- to 8-inch surface layer of dark grayish-brown, grayish-brown, or brown silt loam that is medium acid or strongly acid. The subsoil, to a depth of 15 to 32 inches, is slightly acid to strongly acid, light brownish-gray, grayish-brown, or olive-gray silty clay loam mottled with yellowish brown or strong brown. Below this depth, it is mottled, light brownish-gray or grayish-brown silty clay loam that is high in content of sodium and magnesium. There are many dark-colored concretions in the lower part of the subsoil and few to common concretions of calcium carbonate.

The Fountain soil has a 4- to 8-inch surface layer of dark-gray, dark grayish-brown, or grayish-brown, medium acid to neutral silt loam. The upper part of the subsoil is gray or grayish-brown, slightly acid to neutral silt loam. At a depth of 10 to 20 inches is gray, grayish-brown, or olive-gray silty clay loam mottled with strong brown, dark brown, or yellowish brown. This material is neutral to moderately alkaline in reaction and contains common to many, hard, dark-colored concretions and few to common concretions of calcium carbonate.

The Lafe soil has a 3- to 8-inch surface layer of dark grayish-brown or grayish-brown, slightly acid to strongly acid silt loam. Beginning at a depth of 3 to 15 inches, the subsoil is high in content of sodium and magnesium. The upper part of the subsoil is grayish-brown silty clay loam mottled with yellowish brown and strong brown. It is neutral to strongly alkaline. The lower part is gray or grayish-brown silty clay loam or silt loam mottled with strong brown and yellowish brown. This material is mildly alkaline to strongly alkaline and contains common dark-colored concretions and few to many concretions of calcium carbonate.

The Foley soil is low in natural fertility. Permeability is slow to very slow, and the available water capacity is moderate. Runoff is slow. Where drainage has not been provided, farming operations often have to be delayed after a rain. Adequately drained areas are well suited to most of the common crops. The response to lime and fertilizer is good. Land leveling is hazardous because of the high content of sodium and magnesium in the lower part of the subsoil. Cuts should be shallow, to avoid bringing this material too close to the surface.

The Fountain soil is low in organic-matter content and moderate in natural fertility. The response to fertilizer is good, but the response to lime depends on the crop grown and on the amount of calcium in the soil. Permeability is slow, and the available water capacity is moderate. Runoff is slow. Excess water is a severe hazard if this soil is used for crops. Where drainage has not been provided, farming operations commonly have to be delayed after a rain. Adequately drained areas are suited to most of the common crops.

The Lafe soil is very low in natural fertility and very low in organic-matter content. The available water capacity is very low, and permeability is very slow. Because the surface layer has poor structure, both tillage and seedbed preparation are difficult. The high content of sodium in this soil is detrimental to most crops, pasture plants, and trees. Crops commonly die late in summer, or yields are low. Leveling brings the sodium layer closer to the surface and lessens the soil's capacity to produce crops. Furthermore, if soil material from cuts is spread over adjacent soils, those soils are likely to be damaged. (Entire complex is in capability unit IIIw–1; woodland group 13; wildlife group 6)

Foley complex, 1 to 3 percent slopes (FcB).—This complex is on benches along both sides of Crowley Ridge. The areas are 10 to 100 acres in size. Some areas are characterized by smooth single slopes, and others by low gently sloping ridges alternating with swales. The Foley soil makes up about 60 to 70 percent of an area; the Lafe soil, 15 to 20 percent; and the Fountain soil, 10 to 15 percent. About 5 to 15 percent of an area consists of inclusions of Askew and Alligator soils; of soils that are like the Fountain soil, except that they are acid in the upper part of the subsoil and apparently are transitional between Fountain and Foley soils; and of soils that are like the Lafe soil, except that their subsoil is mostly gray.

The Foley soil has a medium acid or strongly acid, dark grayish-brown, grayish-brown, or brown silt loam surface layer 4 to 8 inches thick. The subsoil, to a depth of 15 to 32 inches, is slightly acid to strongly acid, light brownish-gray, grayish-brown, or olive-gray silty clay loam mottled with yellowish brown or strong brown. Below this depth, it is light brownish-gray or grayish-brown silty clay loam mottled with strong brown, dark brown, or yellowish brown. This material is neutral to moderately alkaline and is high in content of sodium and magnesium. It contains common to many, hard, dark-colored concretions and few to common concretions of calcium carbonate.

The Lafe soil has a 3- to 8-inch surface layer of dark grayish-brown or grayish-brown, slightly acid to strongly acid silt loam. Beginning at a depth of 3 to 15 inches, the subsoil is high in content of sodium and magnesium. The upper part of the subsoil is grayish-brown silty clay loam mottled with yellowish brown and strong brown. This material is neutral to strongly alkaline. The lower part is gray or grayish-brown silty clay loam or silt loam mottled with strong brown and yellowish brown. This material is mildly alkaline to strongly alkaline and contains common dark-colored concretions and few to many concretions of calcium carbonate.

The Fountain soil has a 4- to 8-inch surface layer of dark-gray, dark grayish-brown, or grayish-brown, medium acid to neutral silt loam. The subsoil is gray, grayish-brown, or olive-gray silty clay loam mottled with strong brown, dark brown, or yellowish brown. The upper part of the subsoil is slightly acid to neutral. The lower part is neutral to moderately alkaline and contains common to many, hard, dark-colored concretions and few to common concretions of calcium carbonate.

The Foley soil is low in natural fertility. Runoff is slow. Where drainage has not been provided, farming operations often have to be delayed after a rain. Adequately drained areas are fairly well suited to most of the common crops. Land leveling is hazardous because of the high content of sodium and magnesium in the lower part of the subsoil.

The Lafe soil is very low in natural fertility and very low in organic-matter content. The available water capacity is very low, and permeability is very slow. Because the surface layer has poor structure, both tillage and seedbed preparation are difficult. The high content of sodium in this soil is detrimental to most crops, pasture plants, and trees. Crops commonly die in summer, or yields are low. Leveling brings the sodium layer closer to the surface and lessens the soil's capacity to produce crops. Furthermore, if soil material from cuts is spread over adjacent soils, those soils are likely to be damaged.

The Fountain soil is low in organic-matter content and moderate in natural fertility. The response to fertilizer is good, but the response to lime depends on the crop grown and on the amount of calcium in the soil. Permeability is slow, and the available water capacity is moderate. This soil is on the lower part of slopes. Runoff is slow, and excess water is a moderate to severe hazard. Where drainage is not provided, farming operations commonly have to be delayed after a rain. Adequately drained areas are suited to most of the common crops. (Entire complex is in capability unit IIIw–1; woodland group 13; wildlife group 6)

Forestdale Series

The Forestdale series consists of poorly drained soils that formed in stratified beds of loamy and clayey alluvium. The slope ranges from 0 to 1 percent.

Representative profile of Forestdale silt loam in a cultivated field, NW¼NE¼NW¼SE¼ sec. 21, T. 18 N., R. 7 E.

Ap—0 to 6 inches dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; common roots and pores; medium acid; abrupt, smooth boundary. 4 to 7 inches thick.

IIB21tg—6 to 36 inches, gray (10YR 5/1) silty clay; common, medium, distinct, yellowish-brown mottles; moderate, medium, subangular blocky structure; very firm; few clay films on most ped surfaces and lining some pores. few fine roots; common pores; few, fine, hard and soft, dark-colored concretions, medium acid, clear, smooth boundary 18 to 32 inches thick.

IIIB22g—36 to 50 inches, gray (10YR 6/1) silty clay loam. common, medium, distinct, yellowish-brown mottles. moderate, medium, subangular blocky structure, firm: few fine roots; medium acid; clear, smooth boundary. 12 to 16 inches thick.

IVB3g—50 to 72 inches +, gray (10YR 6/1) sand; structureless; loose, medium acid.

The Ap horizon ranges from dark grayish brown (10YR 4/2) to light brownish gray (10YR 6/2) in color. The IIB21tg horizon is gray (10YR 5/1) or grayish brown (10YR 5/2). The lower part of the B horizon is gray (10YR 6/1) or light brownish gray (10YR 6/2). The IVB3g horizon ranges from loam to sand The Ap horizon is slightly acid to medium acid, and the B horizon is medium acid to strongly acid.

Forestdale soils are associated mainly with Askew and Sharkey soils. They are grayer, more poorly drained, and finer textured than Askew soils. They are coarser textured and more acid than Sharkey soils, and they have a B horizon, which Sharkey soils lack.

Forestdale silt loam (0 to 1 percent slopes) (Fe).—This soil is on old natural levees. The areas are 20 to 60 acres in size.

The surface layer is dark grayish-brown to light brownish-gray silt loam, 4 to 7 inches thick. The subsoil is gray or grayish-brown silty clay underlain by gray or light brownish-gray loam to sand. Included in mapping were spots of Askew, Fountain, and Sharkey soils and small areas of fine sandy loam or silty clay loam.

This soil is low in organic-matter content, moderate in natural fertility, and medium acid to strongly acid. The available water capacity is moderate, and permeability is slow. Runoff is slow, and excess water is a severe hazard.

If adequately drained, this soil is suited to most of the common crops. In undrained areas, farming operations commonly are delayed for several days after a rain. Occasional floods of short duration occur in winter and in spring but do not seriously affect production or the choice of crops. The response to lime and fertilizer is good. (Capability unit IIIw–2; woodland group 11; wildlife group 4)

Fountain Series

The Fountain series consists of poorly drained alluvial soils on bottom lands. The slope ranges from 0 to 1 percent.

Representative profile of Fountain silt loam, SE¼SW¼ SE¼ sec. 2, T. 16 N., R. 6 E.

Ap—0 to 5 inches, grayish-brown (10YR 5/2) silt loam, weak, medium, granular structure, very friable; many fine roots; many, fine, hard, dark-colored concretions, medium acid, abrupt, smooth boundary 4 to 8 inches thick

B1g—5 to 13 inches, grayish-brown (10YR 5/2) silt loam; few, medium, faint, brown mottles, weak, fine, subangular blocky structure; friable; many roots; many, fine, hard, dark-colored concretions; slightly acid; abrupt, smooth boundary. 6 to 12 inches thick.

B21tg—13 to 27 inches, gray (10YR 5/1) silty clay loam; many, medium, distinct, yellowish-brown mottles, and few, medium, distinct, dark-brown mottles; weak, medium, subangular blocky structure, firm, few, thin, patchy clay films on ped surfaces; few roots, many, fine, soft, dark-colored concretions, weak effervescence, neutral; gradual, smooth boundary 12 to 16 inches thick

B22tg—27 to 48 inches, gray (10YR 6/1) silty clay loam; common, medium, distinct, yellowish-brown mottles; weak, medium, subangular blocky structure; firm; common, thin, patchy clay films on ped surfaces; many, fine and medium, soft and hard, dark-colored concretions; few, fine nodules of calcium carbonate; moderately alkaline; gradual, wavy boundary 18 to 25 inches thick

B31g—48 to 58 inches, gray (10YR 6/1) silty clay loam; common, medium, distinct, yellowish-brown mottles; weak, medium, subangular blocky structure; firm, many, fine and medium, hard and soft, dark-colored concretions; few, fine nodules of gray calcium carbonate; moderately alkaline; abrupt, wavy boundary. 8 to 12 inches thick

IIB32g—58 to 72 inches +, mottled gray (10YR 5/1) and yellowish-brown (10YR 5/4) sandy loam; massive; loose; many, fine and medium, black concretions, moderately alkaline

The Ap horizon is silt loam or clay loam. The color ranges from dark gray (10YR 4/1) to grayish brown (10YR 5/2). The B1 and B2 horizons are grayish-brown (10YR 5/2) or gray (10YR 5/1–6/1) heavy silt loam or silty clay loam The B3g horizon ranges from silty clay loam to sandy loam Mottles throughout the B horizon range from few to many and from fine to coarse. The A horizon ranges from neutral to medium acid, and the B horizon from slightly acid to moderately alkaline.

Fountain soils are associated mainly with Askew, Forestdale, and Foley soils. They are grayer and more poorly drained than Askew soils, and they have a coarser textured subsoil than Forestdale soils They have a slightly acid to moderately alkaline B horizon, whereas Askew and Forestdale soils are acid throughout In Foley soils, the upper part of the B horizon is acid and the lower part is alkaline and high in sodium content.

Fountain silt loam (0 to 1 percent slopes) (Fn).—This soil is on the lower part of natural levees on bottom lands. The areas are 40 to 80 acres in size.

The surface layer is dark grayish-brown to grayish-brown silt loam 4 to 8 inches thick. The subsoil is gray, mottled heavy silt loam or silty clay loam. Included in mapping were small spots of Foley and Forestdale soils and small areas of fine sandy loam.

This soil is medium acid to neutral in the surface layer. The upper part of the subsoil is slightly acid to neutral, and the lower part is neutral to moderately alkaline. The organic-matter content is low, natural fertility is moderate, and the available water capacity is moderate. Permeability is moderately slow, and runoff is slow. Excess water is a severe hazard.

If adequately drained, this soil is suited to most of the common crops. Planting and harvesting may have to be delayed in undrained areas. The response to fertilizer is good, but the response to lime commonly is low. (Capability unit IIIw–2; woodland group 13; wildlife group 4)

Fountain clay loam (0 to 1 percent slopes) (Fo).—This soil is on the lowest part of natural levees on bottom lands. The areas are 40 to 80 acres in size.

The surface layer is dark-gray to grayish-brown clay loam. The subsoil is gray, mottled silty clay loam. Included in mapping were small spots of Forestdale and Sharkey soils and a few small areas of silt loam or fine sandy loam.

This soil is medium acid to neutral in the surface layer and neutral to moderately alkaline in the subsoil. It is low in organic-matter content, moderate in natural fertility, and moderate in available water capacity. Permeability is moderately slow, and runoff is slow. Excess water is a severe hazard.

If adequately drained, this soil is suited to most of the common crops. In areas where drainage is not provided, farming operations commonly have to be delayed for several days after a rain. The response to fertilizer is good, but the response to lime commonly is low. (Capability unit IIIw–2; woodland group 13; wildlife group 4)

Freeland Series

The Freeland series consists of level to gently sloping, moderately well drained soils that formed in a thin layer of silt over coarser textured material. These soils are on ridgetops and side slopes on Jones Ridge, in the northwestern part of the county. A fragipan occurs at a depth of 20 to 26 inches.

Representative profile of Freeland silt loam, 3 to 8 percent slopes, eroded, in a cultivated field.

Ap—0 to 7 inches, dark-brown (10YR 4/3) silt loam and small pockets of yellowish-brown (10YR 5/4) silty clay loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; abrupt, smooth boundary 5 to 8 inches thick

B21t—7 to 16 inches, yellowish-brown (10YR 5/4) silty clay loam; weak, medium and fine, subangular blocky structure; friable; common, thin, patchy clay films on some ped surfaces, plentiful fine roots, common pores; few, fine, soft, dark-colored concretions; very strongly acid; clear, smooth boundary, 7 to 12 inches thick

B22t—16 to 24 inches, yellowish-brown (10YR 5/4) silty clay loam; common, medium, distinct, pale-brown mottles, and few, medium, distinct, strong-brown mottles; moderate, medium, subangular blocky structure; firm; common, thin, patchy clay films on ped surfaces; plentiful fine roots; few pores; patchy dark stains on some vertical ped faces, some peds coated with light-gray (10YR 7/1) silt; few, fine, hard, dark-colored concretions; very strongly acid; clear, smooth boundary. 8 to 10 inches thick

Bx1—24 to 34 inches, yellowish-brown (10YR 5/4) silt loam; common, medium, distinct, strong-brown mottles; moderate, medium, angular blocky structure; firm; compact; brittle; common, thin, patchy clay films on ped surfaces; black stains on some peds, some ped surfaces coated with light-gray (10YR 7/1) silt; few roots; few pores; few, fine, hard, dark-colored concretions; very strongly acid; gradual, smooth boundary 8 to 12 inches thick.

Bx2—34 to 43 inches, yellowish-brown (10YR 5/6) silty clay loam, common, medium, faint, dark yellowish-brown mottles; moderate, medium, angular blocky structure; firm; compact; brittle; few thin clay films on ped surfaces; some peds coated with light-gray (10YR 7/1) silt; very strongly acid; clear, smooth boundary. 7 to 18 inches thick.

IIB3—43 to 52 inches, dark-brown (7.5YR 4/4) fine sandy loam; few, fine, faint, gray mottles; weak, medium, subangular blocky structure; friable; some peds coated with light-gray (10YR 7/1) silt; very strongly acid. 9 to 15 inches thick.

IIC1—52 to 70 inches, dark-brown (7.5YR 4/4) loam; friable; very strongly acid. 15 to 25 inches thick

IIC2—70 to 84 inches +, yellowish-red (5YR 4/6) fine sandy loam; friable: very strongly acid. Several feet thick

The Ap horizon ranges from brown (10YR 5/3) to dark brown (10YR 4/3) in color. The B21t and B22t horizons range from yellowish brown (10YR 5/4) to strong brown (7.5YR 5/6) in color and from silt loam to silty clay loam in texture. The total thickness of the silty horizons ranges from 34 to 45 inches. The depth to the Bx1 horizon ranges from 20 to 26 inches. The IIB3 horizon ranges from dark brown (7.5YR 4/4) to yellowish red (5YR 4/6) in color and from loam to fine sandy loam in texture. The reaction is strongly acid to very strongly acid throughout the profile.

Freeland soils are associated mainly with Calloway and Calhoun soils. They formed in a thin layer of silt over coarser textured material and are browner and better drained than Calloway and Calhoun soils, which formed in a thick layer of silt. Freeland soils resemble Loring soils, but Loring soils formed in a thick layer of silt and contain less sand.

Freeland silt loam, 1 to 3 percent slopes, eroded (FrB2).—This soil is on ridgetops on Jones Ridge. The areas are 10 to 40 acres in size.

The surface layer is brown to dark-brown silt loam 5 to 8 inches thick. The upper part of the subsoil is yellowish-brown to strong-brown silt loam or silty clay loam. The lower part is a fragipan. The fragipan begins at a depth of 20 to 26 inches and is from 15 to 30 inches thick. The silty material extends to a depth of 34 to 45 inches and is underlain by dark-brown to yellowish-red loam to fine sandy loam.

In cultivated fields, the present plow layer includes some subsoil material. Rills and a few shallow gullies have formed in some areas, and in places the subsoil is exposed. Included in the areas mapped are spots of Calloway and Calhoun soils, small level spots, and patches of an uneroded soil.

This soil is medium to low in organic-matter content, moderate to low in natural fertility, and strongly acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. Runoff is slow to medium, and erosion is a moderate hazard. The fragipan restricts the penetration of roots but does not seriously affect production or the choice of crops.

This soil is easy to till but can be worked within only a narrow range of moisture content. If well managed, it is suited to most of the common crops. The response to lime and fertilizer is good. (Capability unit IIe–2; woodland group 5; wildlife group 2)

Freeland silt loam, 3 to 8 percent slopes, eroded (FrC2).—This soil is on side slopes of Jones Ridge. The areas are 10 to 40 acres in size.

The surface layer is brown to dark-brown silt loam 5 to 8 inches thick. The upper part of the subsoil is yellowish-brown to strong-brown silt loam or silty clay loam. The lower part is a fragipan. The fragipan begins at a depth of 20 to 26 inches and is from 15 to 30 inches thick. The silty material extends to a depth of 34 to 45 inches and is underlain by dark-brown to yellowish-red loam to fine sandy loam.

In cultivated fields, the present plow layer includes some subsoil material. Rills and a few shallow gullies have formed in most fields, and there are some widely scattered deep gullies. In places the subsoil is exposed. Included in the areas mapped are spots of Calloway and Calhoun soils and small areas of an uneroded soil.

This soil is moderately low to low in natural fertility, moderately low to low in organic-matter content, and strongly acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. Runoff is medium, and erosion is a severe hazard. The fragipan restricts the penetration of roots but does not seriously affect production or the choice of crops.

This soil is easy to till but can be worked within only a narrow range of moisture content. If well managed, it is suited to most of the common crops. The response to lime and fertilizer is good. (Capability unit IIIe–2; woodland group 5; wildlife group 2)

Gullied Land

Gullied land (3 to 25 percent slopes) (Gu) is made up of severely eroded areas, 3 to 25 acres in size, on Crowley Ridge (fig. 5). The areas originally consisted mainly of Loring and Memphis soils, which formed in a thick deposit of silt, and of Brandon soils, which formed in a thin mantle of silt over gravelly Coastal Plain material. They are now so dissected by a network of gullies that, except for small patches and narrow strips, the original soils have been destroyed. Most of the gullies are in the silt, but some have cut into the underlying sand and gravel. They range from 2 to 30 feet in depth and from 2 to 100 feet in width. On the strips between the gullies, most of the surface soil has been removed, and the subsoil is exposed.

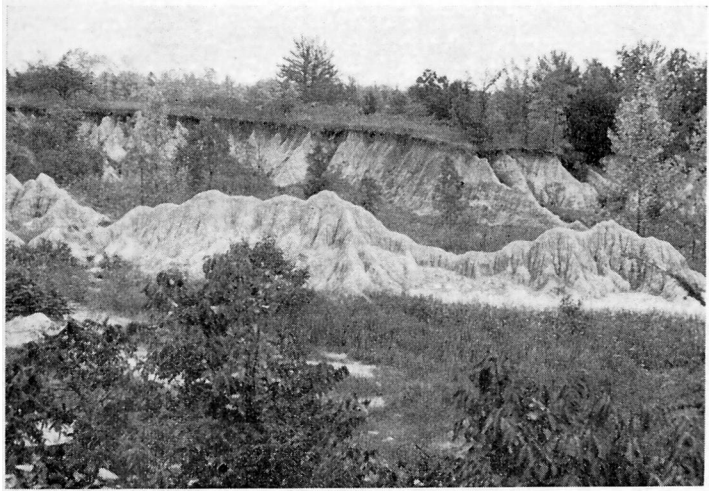

Figure 5.—Gullied land on Crowley Ridge.

After years of cultivation, nearly all of this land is now idle. The present surface layer puddles readily and seals over quickly after a rain. The surface is too irregular and broken for the use of farm machinery. Runoff is rapid, and further erosion is a very severe hazard.

This land type is best suited to woodland and to wildlife shelter areas. Under intensive treatment, some areas can be reclaimed for pasture. (Capability unit VIIe–1; woodland group 14; wildlife group 2)

Hillemann Series

The Hillemann series consists of level or nearly level, somewhat poorly drained soils that formed in silt. These soils are high in sodium content beginning at a depth of 20 to 30 inches.

Representative profile of a Hillemann silt loam (0 to 1 percent slopes), NW¼SW¼SW¼ sec. 13, T. 16 N., R. 3 E.

Ap—0 to 5 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; many roots; medium acid; clear, smooth boundary. 4 to 8 inches thick.

A2—5 to 10 inches, light brownish-gray (10YR 6/2) silt loam; common, fine, distinct, yellowish-brown and brownish-yellow mottles; weak, fine, granular structure, friable; common roots; common, small, dark-colored concretions; medium acid; clear, smooth boundary. 4 to 6 inches thick

B1—10 to 16 inches, grayish-brown (10YR 5/2) silt loam; common, medium, distinct, dark-brown mottles; moderate, medium, subangular blocky structure: friable; common fine roots; common, medium, soft and hard, dark-colored concretions; strongly acid; clear, wavy boundary. 4 to 9 inches thick.

B21t—16 to 24 inches, grayish-brown (10YR 5/2) silty clay loam; many, medium, distinct, yellowish-red mottles, and few, faint, gray mottles; moderate, medium, angular blocky structure; very firm; few roots; thin discontinuous clay films; few, small, dark-colored concretions; vertical streaks and short tongues of gray silt between some peds; strongly acid; clear, wavy boundary. 6 to 12 inches thick.

B22t—24 to 50 inches, grayish-brown (10YR 5/2) silt loam; common, medium, distinct, yellowish-brown mottles; moderate, medium, angular blocky structure; firm; few roots, dark stains on peds; common, small, dark-colored concretions; strongly acid, gradual, smooth boundary. 20 to 40 inches thick

B3—50 to 60 inches +, pale-brown (10YR 6/3) silt loam; common, fine and medium, yellowish-brown and gray mottles; weak, medium, subangular blocky structure; firm; common, small, dark-colored concretions; medium acid

The Ap horizon is brown (10YR 5/3) to dark grayish brown (10YR 4/2). The A2 horizon is light brownish gray (10YR 6/2) to grayish brown (10YR 5/2) and is mottled with shades of brown and yellow. The B1 horizon is grayish-brown (10YR 5/2) to light brownish-gray (10YR 6/2) silt loam to heavy silt loam. The B21t horizon is grayish-brown (10YR 5/2) to light brownish-gray (10YR 6/2) silty clay loam or heavy silty clay loam mottled with shades of red or yellow and gray. The B22t horizon is light brownish-gray (10YR 6/2), grayish-brown (10YR 5/2), pale-brown (10YR 6/3), or brown (10YR 5/3) light silty clay loam or silt loam mottled with shades of brown and gray. In the B3 horizon, the color has a chroma 2 or 3, and it is mottled with shades of brown and gray

The reaction of Hillemann soils is medium acid to slightly acid in the A horizon, strongly acid to medium acid in the B2 horizon, and medium acid to neutral in the B3 horizon The B22t and B3 horizons are high in sodium content

Hillemann soils are associated with Crowley, Calloway, and Calhoun soils They differ from the associated soils in having a high content of sodium and magnesium in the lower part of the

B horizon They differ from Crowley soils in that they have a gradational B1 horizon between the A and B21t horizons, whereas Crowley soils have an abrupt boundary between those horizons and also have a grayer B21t horizon. Hillemann soils lack the fragipan, which is characteristic of Calloway soils, and they lack the large, gray silt tongues that extend from the A horizon several inches into the B horizon of the Calhoun soils.

Hillemann and Crowley silt loams (0 to 1 percent slopes) (Hc).—These soils are in the vicinity of Walcott. Most areas are 40 to 100 acres in size. The Hillemann soil commonly makes up 60 to 90 percent of an area. The Crowley soil makes up as much as 30 percent of some areas but is lacking in others. Included in the areas mapped are spots of Falaya, Calloway, Foley, and Calhoun soils.

Hillemann soils have a surface layer of dark grayish-brown to brown silt loam. The upper part of the subsoil is mottled grayish-brown silt loam over light brownish-gray and red, mottled silty clay loam. The lower part is light brownish-gray to brown, mottled silt loam or silty clay loam and contains an appreciable amount of sodium.

Crowley soils have a surface layer of dark grayish-brown to brown silt loam. The upper part of the subsoil is gray and red, mottled silty clay. The lower part is pale-brown to grayish-brown or gray, mottled silty clay loam.

These soils are medium acid to strongly acid to a depth of about 20 inches. Below this depth, they are strongly acid to neutral. They are low in organic-matter content, moderate in natural fertility, and moderate in available water capacity. Permeability is slow to very slow, and runoff is slow. Excess water is a moderate hazard.

These soils are fairly well suited to most of the common crops and are well suited to rice. Farming operations commonly have to be delayed in areas where drainage is not provided. The response to lime and fertilizer is good.

Land leveling is hazardous because of the high content of sodium and magnesium in the lower part of the Hillemann soils. If this toxic material is brought too close to the surface, crop yields are likely to be lowered. Because Hillemann and Crowley soils commonly occur in an intricate pattern, onsite investigation is necessary to determine where cuts should be shallow. (Capability unit IIw–2; woodland group 15; wildlife group 1)

Iuka Series

The Iuka series consists of moderately well drained soils that formed in sandy and silty sediments washed from Crowley Ridge. The slope ranges from 0 to 1 percent.

Representative profile of Iuka loam in a cultivated field, SW¼NW¼SW¼ sec. 1, T. 16 N., R. 3 E.

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) loam; weak, fine, granular structure; very friable; plentiful roots; medium acid, abrupt, smooth boundary. 6 to 10 inches thick

B1—8 to 28 inches, yellowish-brown (10YR 5/4) fine sandy loam, common, medium, distinct, brownish-yellow and dark-brown mottles, and common, fine and medium, distinct, gray and light brownish-gray mottles; weak, fine, subangular blocky structure; friable; few roots; few, small, soft, dark-colored concretions; very strongly acid, gradual, smooth boundary 15 to 25 inches thick.

B2—28 to 40 inches, pale-brown (10YR 6/3) fine sandy loam; common, medium, faint, light brownish-gray and yellowish-brown mottles; weak, medium, subangular blocky structure, friable; gray (10YR 7/1) silt on some ped surfaces; common, medium and coarse, soft, dark-colored concretions; very strongly acid; gradual, smooth boundary. 10 to 15 inches thick

C1g—40 to 50 inches, gray (10YR 6/1) very fine sandy loam, common, medium, distinct, dark-brown mottles: massive; friable; many, fine, soft, dark-colored concretions; very strongly acid; gradual, smooth boundary. 8 to 15 inches thick

C2g—50 to 60 inches, gray (10YR 6/1) silt loam; common, fine, distinct, dark-brown mottles, massive, friable; strongly acid; gradual, smooth boundary. 8 to 15 inches thick.

C3g—60 to 72 inches +, gray (10YR 6/1) silt loam; common, fine, distinct, dark-brown mottles; massive; friable; very strongly acid.

The Ap horizon ranges from dark grayish brown (10YR 4/2) to grayish brown (10YR 5/2). The B1 horizon ranges from brown (10YR 5/3) to yellowish brown (10YR 5/4) in matrix color and from silt loam to fine sandy loam in texture. The B2 horizon ranges from gray (10YR 6/1) to pale brown (10YR 6/3) in matrix color and from silt loam to fine sandy loam in texture The depth to the B2 horizon ranges from 22 to 32 inches. The C horizon ranges from gray (10YR 6/1) to grayish-brown (10YR 5/2) fine sandy loam or silt loam with common to many dark-brown mottles. In places, the C horizon consists of stratified sediments of fine sandy loam, loam, and silt loam and an occasional lense of gravel The A horizon is medium acid to slightly acid, and the B and C horizons are strongly acid to very strongly acid

Iuka soils are associated with Ochlockonee and Falaya soils They are mottled throughout the subsoil and are grayer than Ochlockonee soils They are more sandy and are more evidently stratified than Falaya soils.

Iuka loam (0 to 1 percent slopes) (Iu).—This soil is on alluvial fans on foot slopes west of Crowley Ridge and along local streams flowing westward from the ridge. The areas are 20 to 60 acres in size.

The surface layer is dark grayish-brown or grayish-brown loam 6 to 10 inches thick. The subsoil is brown to yellowish-brown fine sandy loam or silt loam mottled with gray and brown. Below this are stratified layers of gray, mottled fine sandy loam, loam, and silt loam and an occasional lense of fine gravel. Small areas of Falaya, Collins, and Ochlockonee soils were included in mapping.

This soil is moderate in natural fertility and low in organic-matter content. It is slightly acid to medium acid in the surface layer and strongly acid to very strongly acid below. The available water capacity is moderate, and permeability is moderate. Runoff is slow. In places a plowsole restricts the movement of water and the penetration of plant roots.

This soil is easy to work and can be tilled throughout a wide range of moisture content. It is suited to most of the crops commonly grown in the county. The response to lime and fertilizer is good. (Capability unit I–1; woodland group 2; wildlife group 4)

Lafe Series

The Lafe series consists of poorly drained to somewhat poorly drained soils that formed in a thick layer of silt. These soils have a slope range of 0 to 2 percent. Most of their B horizon is alkaline and high in content of sodium and magnesium.

Representative profile of Lafe silt loam in an idle field, SW¼SW¼NW¼ sec. 1, T. 17 N., R. 5 E.

Ap—0 to 4 inches, grayish-brown (10YR 5/2) silt loam; weak, fine, granular structure; very friable; many roots, few, fine, hard, dark-colored concretions; strongly acid; abrupt, smooth boundary. 3 to 5 inches thick

A2g—4 to 8 inches, gray (10YR 5/1) silt loam; few, medium, distinct, yellowish-brown mottles, and common, medium, distinct, dark-brown mottles, weak, fine, subangular blocky structure; friable; few roots; few, fine, hard, dark-colored concretions; strongly acid; abrupt, wavy boundary, 4 to 6 inches thick

B21tg—8 to 12 inches, grayish-brown (10YR 5/2) silty clay loam, common, medium, distinct, brownish-yellow mottles, and few, medium, distinct, yellowish-brown mottles, strong, medium, subangular blocky structure, firm; few thin clay films on ped surfaces; many peds coated with light-gray (10YR 7/1) silt, few peds coated with black stains; gray silt pockets, common, medium, hard, dark-colored concretions, slightly acid; abrupt, smooth boundary, 4 to 6 inches thick

B22tg—12 to 31 inches, grayish-brown (10YR 5/2) silty clay loam, few, medium, prominent, olive-brown mottles, and common, medium, distinct, yellowish-brown mottles; weak, prismatic structure that breaks to strong, medium to coarse, angular blocky; very firm; common medium clay films on ped surfaces and in pores, few roots on ped surfaces; peds coated with gray (10YR 7/1) silt, gray silt in pockets and root channels; common vesicular and tubular pores; few, fine, hard, dark-colored concretions; moderately alkaline; gradual, wavy boundary 15 to 25 inches thick

B23t—31 to 50 inches, grayish-brown (10YR 5/2) silt loam; common, fine, distinct, yellowish-brown mottles and few, fine, faint, dark-brown mottles; moderate, medium, subangular blocky structure; firm; common thin clay films on ped surfaces and in pores; few peds coated with black and dark gray; common vesicular and tubular pores; moderately alkaline; gradual, wavy boundary 15 to 25 inches thick

B24t—50 to 61 inches, grayish-brown (10YR 5/2) silt loam, common, fine, distinct, yellowish-brown mottles, and few, fine, faint, dark-brown mottles, moderate, medium, subangular blocky structure; firm; brittle, few thin clay films on ped surfaces; few peds coated with black and dark gray; moderately alkaline; gradual, smooth boundary, 8 to 15 inches thick.

Cg—61 to 77 inches +, light-gray (5Y 7/1) silt loam; common, medium, distinct, yellowish-brown mottles; massive; friable; many medium concretions of calcium carbonate; moderately alkaline

The Ap horizon ranges from dark grayish brown (10YR 4/2) to grayish brown (10YR 5/2) in color, and the B horizon from light brownish gray (10YR 6/2) to grayish brown (10YR 5/2). The depth to the horizon that is alkaline and high in sodium and magnesium ranges from 2 to 15 inches. In places the B21t and B22t horizons have moderate prismatic structure or weak columnar structure. In some areas, there are relict cortices of roots filled with gray (10YR 7/1) silt in the lower part of the B horizon and in the C horizon. The reaction ranges from very strongly acid to medium acid in the A horizon, from slightly acid to strongly alkaline in the B21tg horizon, and from mildly alkaline to strongly alkaline below.

Lafe soils are associated mainly with Foley and Calloway soils. They differ from Foley soils in that most of their B horizon is alkaline and high in sodium content, whereas in Foley soils only the lower part of the B horizon is alkaline and high in sodium content. They differ from Calloway soils in that those soils are acid throughout and lack the high sodium content, and they have a fragipan.

Lafe silt loam (0 to 2 percent slopes) (La).—This soil is on flats and low ridges of the loessal plain and on low flats within Crowley Ridge. The areas are 2 to 20 acres in size.

The surface layer is dark grayish-brown or grayish-brown silt loam 3 to 5 inches thick. The upper part of the subsoil is grayish-brown to light brownish-gray silty clay loam mottled with yellowish brown and dark brown. The lower part is grayish-brown to light-gray, mottled silt loam or silty clay loam. The depth to the alkaline layer, which is high in sodium content, ranges from 2 to 15 inches. Included in mapping were a few eroded spots and some spots of Foley silt loam.

This soil has a medium acid to very strongly acid surface layer and a mildly alkaline to strongly alkaline subsoil. It is very low in natural fertility and very low in organic-matter content. The available water capacity is very low, and permeability is very slow. Runoff is slow. The structure of the surface layer is poor; thus good seedbeds are difficult to prepare. The subsoil is compact and restricts the movement of water and the growth of plant roots. The sodium content of the subsoil is at levels toxic to many plants.

This soil is poorly suited to most crops. Plants commonly die before maturity. Yields of pasture plants are low, and trees do not produce commercial timber (fig. 6). The most suitable use for this soil is wildlife habitat. (Capability unit VIs–1; woodland group 15; wildlife group 3)

Loring Series

The Loring series consists of moderately well drained to well drained soils that formed in silt more than 4 feet thick. The slope ranges from 1 to 20 percent. These soils have a fragipan at a depth of 20 to 36 inches.

Representative profile of Loring silt loam, 8 to 12 percent slopes, eroded, in a pasture, NE¼NW¼SW¼ sec. 22, T. 17 N., R. 5 E.

Ap—0 to 5 inches, dark yellowish-brown (10YR 3/4) silt loam, weak, fine, granular structure; very friable; plentiful roots; few chips of dark brown (7.5YR 4/4) slightly acid; abrupt, smooth boundary 4 to 7 inches thick

B1—5 to 11 inches, dark-brown (7.5YR 4/4) silt loam weak, medium, subangular blocky structure; friable, plentiful roots; few pores; very strongly acid; gradual, smooth boundary, 4 to 8 inches thick.

B21t—11 to 29 inches, strong-brown (7.5YR 5/6) silty clay loam; very few, fine, distinct, gray mottles in lower part; moderate, fine and medium, subangular blocky structure, firm; common thin clay films on ped surfaces; few roots; few pores: some peds coated with light brownish-gray (10YR 6/2) silt, very strongly acid; clear, smooth boundary 18 to 25 inches thick.

B22t—29 to 33 inches, strong-brown (7.5YR 5/6) silty clay loam; common, medium, distinct, yellowish-brown and gray mottles, moderate, medium and fine, subangular blocky structure: friable, common thin clay films on ped surfaces; few roots; few pores, some peds coated with gray (10YR 7/1) silt: few, small, hard, dark-colored concretions; very strongly acid; clear, smooth boundary 4 to 6 inches thick

Bx—33 to 45 inches, strong-brown (7.5YR 5/6) silt loam few, medium, distinct, dark yellowish-brown mottles and common, medium, distinct, gray mottles; moderate, medium, subangular blocky structure; firm; compact; brittle; thin patchy clay films on most peds; few roots; few, small, soft and hard, dark-colored concretions; very strongly acid; gradual, smooth boundary, 8 to 15 inches thick

B3—45 to 65 inches, yellowish-red (5YR 5/6) silt loam: common, fine and medium, distinct, grayish-brown mottles, weak, medium, subangular blocky structure; friable, some peds coated with gray (10YR 6/1) silt: strongly acid; gradual, smooth boundary 15 to 25 inches thick

C—65 to 84 inches +, mottled yellowish-red (5YR 4/6) and gray (10YR 6/1) silt loam; massive; friable; few, fine, black concretions; very strongly acid.

The color of the Ap horizon is dark brown (10YR 4/3), dark yellowish brown (10YR 4/4, 10YR 3/4), or brown (10YR 5/3). The Bt horizon has matrix colors that range from yellowish brown (10YR 5/4) to strong brown (7.5YR 5/6). The depth to the Bx horizon ranges from 20 to 36 inches. The B3 horizon is

Figure 6.—A sparse stand of trees on Lafe silt loam.

yellowish brown, strong brown, yellowish red, or reddish brown. The reaction ranges from very strongly acid to medium acid.

Loring soils are associated mainly with Memphis and Calloway soils They differ from Memphis soils in having a fragipan. They are browner than Calloway soils, and they have a less distinct, thinner fragipan and fewer mottles than Calloway soils, which are mottled nearer the surface.

Loring silt loam, 1 to 3 percent slopes, eroded (lgB2).—This soil is on ridgetops on Crowley Ridge. The areas are 10 to 50 acres in size.

The surface layer is dark-brown to dark yellowish-brown silt loam 4 to 7 inches thick. The subsoil is yellowish-brown to strong-brown silty clay loam. A mottled, weakly developed fragipan begins at a depth of 26 to 36 inches and is 8 to 15 inches thick. Erosion has removed part of the original surface layer, and in places there are patches where the subsoil is exposed. In cultivated fields the present plow layer generally includes some subsoil material. Small rills commonly form during rains. Included in mapping were small areas of Memphis and Brandon soils and a few spots of an uneroded soil.

This soil is moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. The fragipan restricts the penetration of roots and the movement of water. Runoff is medium, and erosion is a moderate hazard.

This soil is easy to work and can be tilled throughout a moderate range of moisture content. It is suited to most of the common crops. The response to lime and fertilizer is good. (Capability unit IIe–2; woodland group 5; wildlife group 2)

Loring silt loam, 3 to 8 percent slopes, eroded (lgC2).—This soil is on ridgetops on Crowley Ridge. The areas are 20 to 100 acres in size.

The surface layer is dark-brown to dark yellowish-brown silt loam 4 to 7 inches thick. The subsoil is dark yellowish-brown to strong-brown silty clay loam. A mottled, weakly developed fragipan begins at a depth of 26 to 36 inches and is 8 to 15 inches thick. Erosion has removed part of the original surface layer, and in most areas there are patches where the subsoil is exposed. In cultivated fields, the present plow layer generally includes some subsoil material. A few shallow gullies have formed in some areas, and in places there are deep gullies that impede the operation of farm machinery. Small rills com-

monly form during rains. Included in mapping were small areas of Memphis and Brandon soils and spots of an uneroded soil.

This soil is moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. The fragipan restricts the movement of water and the penetration of plant roots. Runoff is medium, and erosion is a severe hazard.

This soil is easy to work and can be tilled throughout a moderate range of moisture content. If management is good, it is suited to most of the common crops. The response to lime and fertilizer is good. (Capability unit IIIe–2; woodland group 6; wildlife group 2)

Loring silt loam, 3 to 8 percent slopes, severely eroded (LgC3).—This soil is on ridgetops on Crowley Ridge. The areas are 10 to 60 acres in size.

The surface layer is dark-brown to dark yellowish-brown silt loam 4 to 6 inches thick. The subsoil is dark yellowish-brown to strong-brown silty clay loam. A mottled, weakly developed fragipan begins at a depth of 20 to 30 inches and is 8 to 15 inches thick. Erosion has removed most of the original surface layer, and in many places there are patches where the subsoil is exposed. In cultivated fields, the present plow layer includes some subsoil material. A few deep gullies and common to many shallow gullies have formed. This network of gullies impedes farming operations. Included in mapping were small areas of Memphis and Brandon soils.

This soil is moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. The fragipan restricts the movement of water and the penetration of plant roots. Runoff is rapid, and the hazard of further erosion is severe.

This soil can be worked throughout a moderate range of moisture content. Under careful management, it is fairly well suited to most of the crops commonly grown in the county. The response to lime and fertilizer is good. (Capability unit IIIe–2; woodland group 14; wildlife group 2)

Loring silt loam, 8 to 12 percent slopes, eroded (LgD2).—This soil is on side slopes on Crowley Ridge. The areas are 20 to 100 acres in size.

The surface layer is dark-brown to dark yellowish-brown silt loam 4 to 7 inches thick. The subsoil is yellowish-brown to strong-brown silty clay loam. A mottled, weakly developed fragipan begins at a depth of 26 to 36 inches and is 8 to 15 inches thick. Erosion has removed part of the original surface layer, and in most areas there are patches where the subsoil is exposed. In cultivated fields the present plow layer generally includes some subsoil material. A few shallow gullies have formed in some areas, and in places there are deep gullies that impede the operation of farm machinery. Included in mapping were small areas of Memphis and Brandon soils and a few spots of an uneroded soil.

This soil is moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. The fragipan restricts the penetration of roots and the movement of water. Runoff is rapid, and erosion is a very severe hazard.

This soil is poorly suited to cultivated crops, but it is suited to pasture or woodland (fig. 7). The response to lime and fertilizer is good. (Capability unit IVe–1; woodland group 6; wildlife group 2)

Loring silt loam, 8 to 12 percent slopes, severely eroded (LgD3).—This soil is on side slopes on Crowley Ridge. The areas are 10 to 50 acres in size.

The surface layer is dark-brown to dark yellowish-brown silt loam 4 to 6 inches thick. The subsoil is yellowish-brown to strong-brown silty clay loam. A mottled, weakly developed fragipan begins at a depth of 20 to 30 inches and is 8 to 15 inches thick. Erosion has removed most of the original surface layer, and in many areas there are patches where the subsoil is exposed. There are also common to many shallow gullies and a few deep gullies. In recently cultivated fields, the present plow layer includes some subsoil material. Most fields, however, have been idle or in pasture for many years, and the mixing of surface soil and subsoil is not obvious. Small areas of Memphis and Brandon soils were included in mapping.

This soil is moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. Permeability is moderately slow. The fragipan restricts the penetration of roots and the movement of water. Erosion is a very severe hazard.

This soil is poorly suited to cultivated crops, but it is suited to pasture or woodland. (Capability unit IVe–1; woodland group 14; wildlife group 2)

Loring and Memphis silt loams, 12 to 20 percent slopes (LmE).—This undifferentiated unit occurs as elongated areas on side slopes on Crowley Ridge. The areas are mainly on the contour and are from 20 to 60 acres in size. The Loring soil makes up 60 to 85 percent of an area, and the Memphis soil as much as 35 percent, but in some areas the Memphis soil is lacking. Small areas of Brandon and Saffell soils and spots of an eroded soil are included in the areas mapped.

In the Loring soil, the surface layer is dark-brown to dark yellowish-brown silt loam, and the subsoil is yellowish-brown to strong-brown silty clay loam. A mottled fragipan begins at a depth of 26 to 36 inches and is 8 to 15 inches thick.

In the Memphis soil, the surface layer is dark grayish-brown to brown silt loam, and the subsoil is strong-brown to yellowish-red silty clay loam.

These soils are moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. Runoff is rapid, and erosion is a severe hazard. The fragipan in the Loring soil restricts the movement of water and the penetration of plant roots.

These soils are poorly suited to cultivated crops, but they are well suited to pasture and woodland. (Capability unit VIe–2; woodland group 7; wildlife group 2)

Memphis Series

The Memphis series consists of well-drained soils that formed in a thick layer of silt on Crowley Ridge. The slope ranges from 1 to 20 percent.

Profile of Memphis silt loam, 1 to 3 percent slopes, eroded, in a cultivated field, NW¼SE¼NE¼ sec. 28, T. 16 N., R. 4 E.

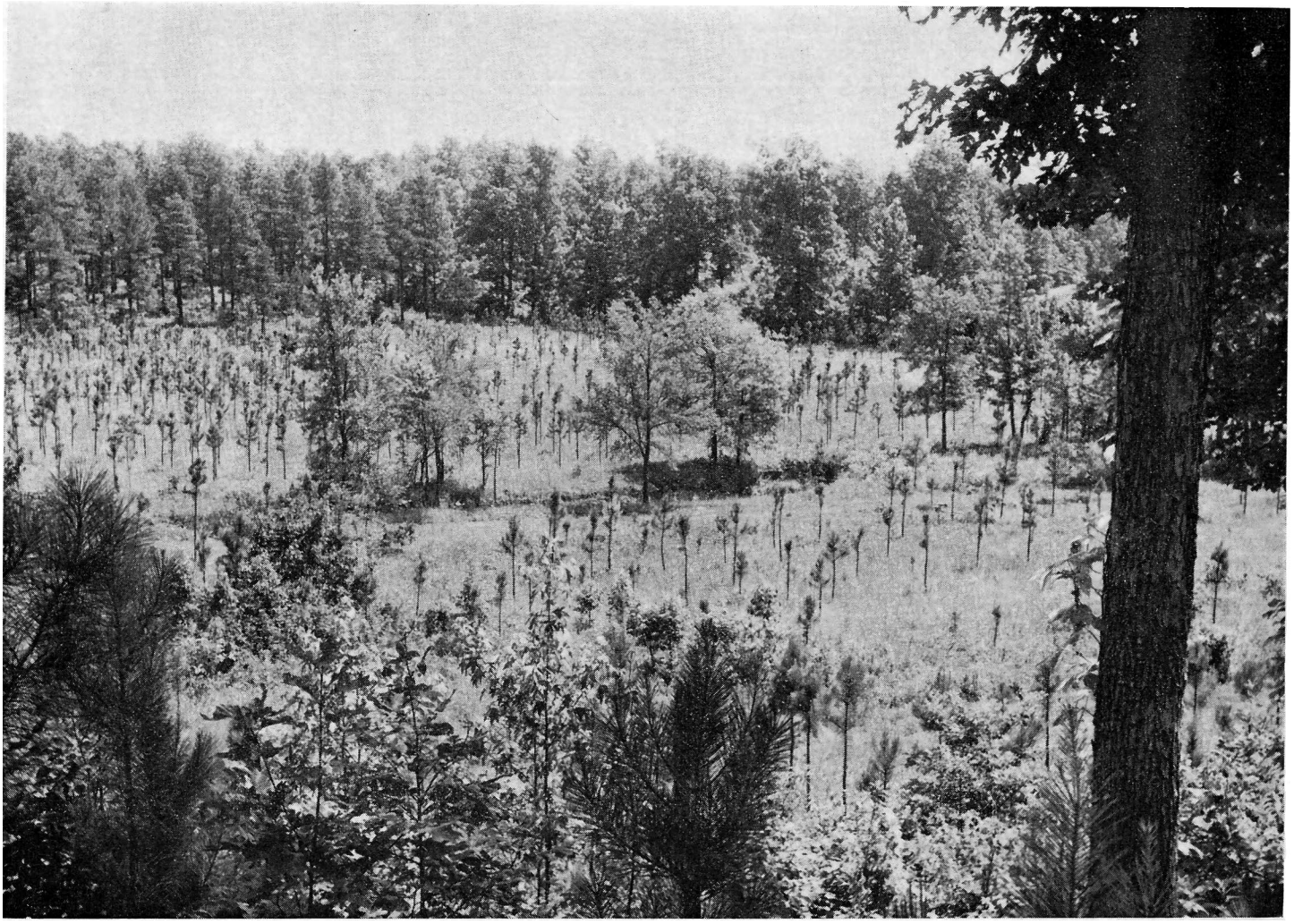

Figure 7.—**Planted stand of loblolly pine seedlings on a Loring Silt loam.**

Ap—0 to 7 inches, brown (10YR 5/3) silt loam; weak fine, granular structure; very friable; abundant roots, few pores, common, small, yellowish-red plow shards and chips from upper part of B1 horizon; medium acid; abrupt, smooth boundary, 4 to 8 inches thick.

B1—7 to 12 inches, yellowish-red (5YR 4/6) silt loam, moderate, fine and medium, subangular blocky structure; friable, very few, thin, patchy clay films on some ped surfaces, abundant roots; few pores, strongly acid, clear, smooth boundary, 4 to 8 inches thick.

B21t—12 to 32 inches, reddish-brown (5YR 4/4) silty clay loam, moderate, fine and medium, subangular blocky structure; firm; few roots; continuous, medium clay films on ped and pore surfaces; few pores, few peds coated with black stains; very strongly acid, diffuse boundary, 15 to 25 inches thick.

B22t—32 to 46 inches, yellowish-red (5YR 4/6) silty clay loam; moderate, fine and medium, subangular blocky structure; firm; common, thin, patchy clay films on peds; few roots; few pores; few ped surfaces coated with black stains; very strongly acid; gradual, smooth boundary, 15 to 20 inches thick.

C—46 to 84 inches +, yellowish-red (5YR 5/6) silt loam; massive; friable; few roots; few cracks filled with light brownish-gray (10YR 6/2) silt; very strongly acid.

The Ap horizon ranges from brown (10YR 5/3) to dark grayish brown (10YR 4/2). In wooded areas, the A1 horizon ranges to dark brown (10YR 3/3). The Bt horizon ranges from yellowish brown (10YR 5/4) to yellowish red (5YR 5/6). The reaction ranges from medium acid to very strongly acid.

Memphis soils are associated with Loring and Brandon soils. They lack the fragipan, which is characteristic of Loring soils, and they are better drained. They lack the gravel and sand content characteristic of Brandon soils, and they have higher base saturation.

Memphis silt loam, 1 to 3 percent slopes, eroded (MeB2).—This soil is on narrow ridgetops on Crowley Ridge. The areas are 20 to 40 acres in size.

The surface layer is dark grayish-brown or brown silt loam 4 to 8 inches thick. The subsoil is strong-brown to yellowish-red silty clay loam. Erosion has removed some of the original surface layer, and in places there are patches where the subsoil is exposed. Small rills commonly form during rains. In recently cultivated fields, the present plow layer includes some subsoil material. Small areas of Loring and Brandon soils and spots of an uneroded soil were included in mapping.

This soil is moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and per-

meability is moderately slow. Runoff is medium, and erosion is a moderate hazard.

This soil is easy to work, and it can be tilled throughout a moderate range of moisture content. It is suited to most of the crops commonly grown in the county. The response to lime and fertilizer is good. (Capability unit IIe–2; woodland group 5; wildlife group 2)

Memphis silt loam, 3 to 8 percent slopes, eroded (MeC2).—This soil is on side slopes on Crowley Ridge. The areas are 30 to 100 acres in size.

The surface layer is dark grayish-brown to brown silt loam 4 to 8 inches thick. The subsoil is strong-brown to yellowish-red silty clay loam. Erosion has removed part of the original surface layer, and in places there are patches where the subsoil is exposed. A few shallow gullies have formed. In recently cultivated fields, the present plow layer includes some subsoil material. Included in mapping were small areas of Loring and Brandon soils and small areas of an uneroded soil.

This soil is moderate in natural fertility, low in organic-matter content, and strongly acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. Runoff is rapid, and erosion is a severe hazard.

This soil is easy to work, and it can be tilled throughout a moderate range of moisture content. Under careful management, it is suited to most of the common crops. The response to lime and fertilizer is good. (Capability unit IIIe–2; woodland group 5; wildlife group 2)

Ochlockonee Series

The Ochlockonee series consists of well-drained soils that formed in alluvial material on foot slopes west of Crowley Ridge and along streams flowing westward from the ridge. The slope is 0 to 1 percent.

Representative profile of Ochlockonee loam in a cultivated field, NW¼NW¼NE¼ sec. 14, T. 16 N., R. 3 E.

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) loam; weak, fine, granular structure; very friable; abundant roots; medium acid; abrupt, smooth boundary. 6 to 10 inches thick.

C1—8 to 23 inches, brown (10YR 5/3) fine sandy loam; weak, fine, subangular blocky structure; friable; many roots and pores; very strongly acid; gradual, smooth boundary. 12 to 18 inches thick.

C2—23 to 36 inches, pale-brown (10YR 6/3) fine sandy loam; few, fine, faint, light brownish-gray mottles, and few, medium, distinct, dark-brown mottles; weak, fine, subangular blocky structure; friable; abundant roots; few light-gray (10YR 7/1) silt pockets; abundant, soft, medium, brown concretions; very strongly acid; gradual, smooth boundary. 10 to 15 inches thick.

C3—36 to 45 inches, mottled dark grayish-brown (10YR 4/2) and light-gray (10YR 7/1) silt loam; weak, fine, granular structure; friable; common, soft, dark-colored concretions; very strongly acid; gradual, smooth boundary 8 to 12 inches thick.

C4—45 to 72 inches +, mottled gray (10YR 6/1) and dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; common, soft, dark-colored concretions, strongly acid

The Ap horizon is dark grayish brown (10YR 4/2) or dark brown (10YR 4/3). The C2 horizon ranges from brown (10YR 5/3) to pale brown (10YR 6/3). The depth to mottling ranges from 20 to 30 inches In some places, the C horizon is stratified sandy, silty, or gravelly sediments. The reaction ranges from medium acid to very strongly acid

Ochlockonee soils are associated mainly with Iuka and Falaya soils They are better drained and browner than Iuka soils, and they are better drained, more sandy, and browner than Falaya soils.

Ochlockonee loam (0 to 1 percent slopes) (Oc).—This soil is on alluvial fans west of Crowley Ridge and along streams that flow westward from the ridge. The areas are 10 to 30 acres in size.

The surface layer is dark grayish-brown to dark-brown loam 6 to 10 inches thick. It is underlain by pale-brown to brown loam or fine sandy loam that, beginning at a depth of 20 to 30 inches, is mottled with shades of gray and brown. Below this is silt loam or stratified gray and brown, mottled sandy loam, loam, and silt loam, interspersed in places with a layer of gravelly material. Included in mapping were small areas of Collins, Falaya, and Iuka soils and a few spots in which the gradient is as much as 3 percent.

This soil is moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderate. Runoff is slow.

This soil warms up quickly and can be planted early in spring. It is easy to work and can be tilled throughout a wide range of moisture content. It is well suited to most of the crops commonly grown in the county. The response to lime and fertilizer is good. (Capability unit I–1; woodland group 2; wildlife group 4)

Saffell Series

The Saffell series consists of soils that formed in sandy, gravelly Coastal Plain material in areas on Crowley Ridge where the loessal mantle is lacking. The slope ranges from 12 to 20 percent.

Representative profile of Saffell gravelly fine sandy loam, 12 to 20 percent slopes, eroded, NW¼NE¼SE¼ sec. 3, T. 17 N., R. 4 E.

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) gravelly fine sandy loam; weak, fine, granular structure; very friable; plentiful roots; 15 percent of volume is rounded pea-sized gravel; medium acid; abrupt, smooth boundary. 3 to 6 inches thick

B21t—5 to 15 inches, yellowish-red (5YR 4/6) gravelly sandy loam; weak, medium, subangular blocky structure; friable; few patchy clay films; many roots; 15 percent of volume is rounded pea-sized gravel, strongly acid, clear, wavy boundary. 8 to 12 inches thick

B22t—15 to 39 inches, red (2.5YR 4/6) gravelly sandy clay loam, weak, medium, subangular blocky structure; firm; patchy clay films on most ped surfaces; 60 percent of volume is rounded gravel; very strongly acid; clear, wavy boundary 20 to 30 inches thick.

B3—39 to 72 inches +, red (2.5YR 4/6) gravelly sandy loam; weak, medium, subangular blocky structure; friable; 75 percent of volume is rounded gravel; very strongly acid.

The color of the A horizon ranges from dark grayish brown (10YR 4/2) to brown (10YR 5/3) The B2t and B3 horizons range from yellowish red (5YR 4/6) to red (2.5YR 4/6). The A horizon ranges from 15 to 40 percent in gravel content the B21t horizon, from 15 to 65 percent; the B22t horizon, from 40 to 65 percent, and the B3 horizon, from 60 to 90 percent The reaction ranges from medium acid to very strongly acid

Saffell soils are associated mainly with Brandon soils. They formed in gravelly and sandy Coastal Plain material and have a gravelly sandy clay loam B horizon, whereas Brandon soils formed in a thin layer of silt over gravelly, sandy material and have a more silty surface layer and a silty clay loam B horizon

Saffell gravelly fine sandy loam, 12 to 20 percent slopes, eroded (SaE2).—This soil is on side slopes on Crowley Ridge. The areas are 40 to 100 acres in size.

The surface layer is dark grayish-brown to brown gravelly fine sandy loam 3 to 6 inches thick. The subsoil is red to yellowish-red gravelly sandy clay loam. Part of the original surface layer has been removed by erosion, and there are patches where the subsoil is exposed. Some shallow gullies and a few scattered deep gullies have formed along skid trails. The gravel content, which increases with depth, averages more than 50 percent, by volume, of the subsoil material. Included in mapping were small areas of Brandon, Memphis, and Loring soils and a few gravel pits.

This soil is low in natural fertility, low in organic-matter content, and strongly acid to very strongly acid. The available water capacity is moderate to low, depending on the gravel content. Permeability is moderately slow, and runoff is rapid. Erosion is a severe hazard.

This soil is somewhat droughty. It is poorly suited to cultivated crops but is suited to woodland or wildlife habitat. (Capability unit VIe–1; woodland group 10; wildlife group 2)

Sharkey Series

The Sharkey series consists of poorly drained clayey soils in the slack-water areas along the St. Francis and Cache Rivers. The slope ranges from 0 to 1 percent.

Representative profile of Sharkey clay in a cultivated field.

Ap—0 to 4 inches, dark-gray (10YR 4/1) clay; moderate, fine, granular structure; firm; plentiful roots; few pores; slightly acid; abrupt, smooth boundary 4 to 6 inches thick.

C1g—4 to 26 inches, gray (10YR 5/1) clay; common, fine, distinct, dark yellowish-brown mottles, massive; firm, plastic; few fine roots; few, small, soft and hard, dark-colored concretions; common slickensides; cracks filled with dark-gray (10YR 4/1) clay; neutral; diffuse boundary 15 to 25 inches thick.

C2g—26 to 72 inches +, gray (5Y 5/1) clay; common, medium, distinct, yellowish-brown mottles; massive; firm; plastic; few, fine and medium nodules of calcium carbonate, and common, fine, soft, brown concretions; neutral.

The Ap horizon ranges from very dark gray (10YR 3/1) to dark gray (10YR 4/1), the C1g horizon from dark gray (10YR 4/1) to gray (10YR 5/1), and the C2g horizon from dark gray (10YR 4/1) to gray (10YR 5/1 or 5Y 5/1). The Ap horizon ranges from medium acid to neutral, and the Cg horizon from slightly acid to mildly alkaline. In places the lower part of the Cg horizon contains few to common, coarse, rounded nodules of calcium carbonate

Sharkey soils are associated mainly with Forestdale and Fountain soils They lack a B horizon and are more clayey than either Forestdale or Fountain soils. They are less acid than Forestdale soils, and they contain more calcium and less magnesium than Fountain soils.

Sharkey clay (0 to 1 percent slopes) (Sc).—This soil is in slack-water areas along the St. Francis and Cache Rivers. The areas are 10 to 100 acres in size.

The surface layer is very dark gray to dark-gray clay 4 to 6 inches thick. It is underlain by dark-gray to gray clay mottled with yellowish brown. Included in mapping were small areas of Forestdale and Fountain soils, small areas of soils that have a black surface layer, and a few small areas of clay loam.

Figure 8.—**Newly constructed drainage ditch on Sharkey clay.**

This soil is medium in organic-matter content, high in natural fertility, and slightly acid to neutral in reaction. The available water capacity is moderate, and permeability is very slow. When dry, this soil contracts and cracks; when wet, it expands and seals over. Water movement into the soil is slow, unless the soil is cracked. Runoff is slow or ponded, and excess water is a severe hazard.

This soil is difficult to work, and it can be tilled within only a narrow range of moisture content. In areas where drainage is not provided, farming operations commonly are delayed for several days after a rain. Adequately drained areas are suited to most of the crops commonly grown in the county (fig. 8). The response to lime and fertilizer is good. (Capability unit IIIw–4; woodland group 4; wildlife group 5)

Use of the Soils for Crops and Pasture [2]

This section explains the system of capability classification used by the Soil Conservation Service and discusses the use and management of the soils in Greene County by capability units. It also includes a table showing predicted yields of the principal crops under improved management.

The principal crops grown in the county include cotton, soybeans, rice, wheat, corn, and plants for hay and pasture. A large part of the acreage used for hay and pasture is on Crowley Ridge. In recent years, a considerable acreage of the less strongly sloping soils on Crowley Ridge has been used for row crops, mainly soybeans. The legumes most commonly grown in the county are white clover, alfalfa, crimson clover, vetch, sericea lespedeza, and annual lespedeza.

The response to lime and fertilizer is good on most of the soils used for crops. The amount applied should be based on the results of soil tests and the needs of the crop to be grown.

Capability Groups of Soils

Capability classification is the grouping of soils to show, in a general way, their suitability for most kinds of farm-

[2] WILSON FERGUSON, management agronomist, Soil Conservation Service, helped prepare this section.

ing. It is a practical classification based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment when used for the common field crops or for sown pasture. The classification does not apply to most horticultural crops or to rice and other crops that have special requirements. The soils are classified according to the degree and kind of permanent limitation, but without consideration of major and generally expensive land-forming that would change the slope, depth, or other characteristics of the soils, and without consideration of possible major reclamation projects.

In the capability system, all kinds of soils are grouped at three levels: the capability class, the subclass, and the unit.

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

Class I. Soils have few limitations that restrict their use.

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

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

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

Class V. Soils are not likely to erode but have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife food and cover. None in Greene County.

Class VI. Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife food and cover.

Class VII. Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.

Class VIII. Soils and landforms have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife, or water supply, or to esthetic purposes. None in Greene County.

Capability Subclasses are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only subclasses indicated by *w*, *s*, and *c*, because the soils in it are subject to little or no erosion, though they have other limitations that restrict their use largely to pasture, range, woodland, wildlife, or recreation.

Capability Units are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe–2 or IIIw–4. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraphs; and the Arabic numeral specifically identifies the capability unit within the subclass.

Management by Capability Units

In the following pages, the capability units in Greene County are described, and suggestions for the use and management of the soils in each unit are given. The capability classification of any individual soil can be learned by referring to the "Guide to Mapping Units."

Capability unit I–1

This unit consists of deep, level, well-drained to somewhat poorly drained soils of the Askew, Bosket, Collins, Iuka, and Ochlockonee series. These soils are on bottom lands. They have a surface layer of friable fine sandy loam, silt loam, or loam, which is underlain by fine sandy loam, silt loam, loam, clay loam, silty clay loam, or sandy clay loam. Below this are loamy and sandy sediments.

The soils of this unit make up about 12 percent of the county. They are moderate to moderately low in natural fertility, medium to low in organic-matter content, and very strongly acid to medium acid. The available water capacity is moderate, and permeability is moderate to moderately slow.

These are among the best soils in the county for crops. They are well suited to a wide variety of row crops. Cotton (fig. 9), corn, soybeans, and small grain grow well if management is good. Bermudagrass, johnsongrass, and tall fescue are well-suited grasses, and vetch, crimson clover, annual lespedeza, sericea lespedeza, and white clover are well-suited legumes.

If adequately fertilized and properly tilled, these soils can be used continuously for cultivated crops that leave a large amount of residue.

Capability unit IIe–1

Bosket fine sandy loam, gently undulating, is the only soil in this unit. This is a deep, well-drained soil on natural levees on bottom lands. The surface layer of friable fine sandy loam is underlain by loam or sandy clay loam. Below this is fine sandy loam, sandy loam, or loamy sand.

This soil makes up about 2 percent of the county. It is moderate in natural fertility, medium in organic-matter content, and medium acid to strongly acid. The available water capacity is moderate, and permeability is moderate.

This is one of the best soils in the county for crops. If properly managed, it is well suited to cotton, corn, soybeans, small grain, and truck crops. Bermudagrass, johnsongrass, and tall fescue are suitable grasses, and vetch, crimson clover, annual lespedeza, and white clover are suitable legumes.

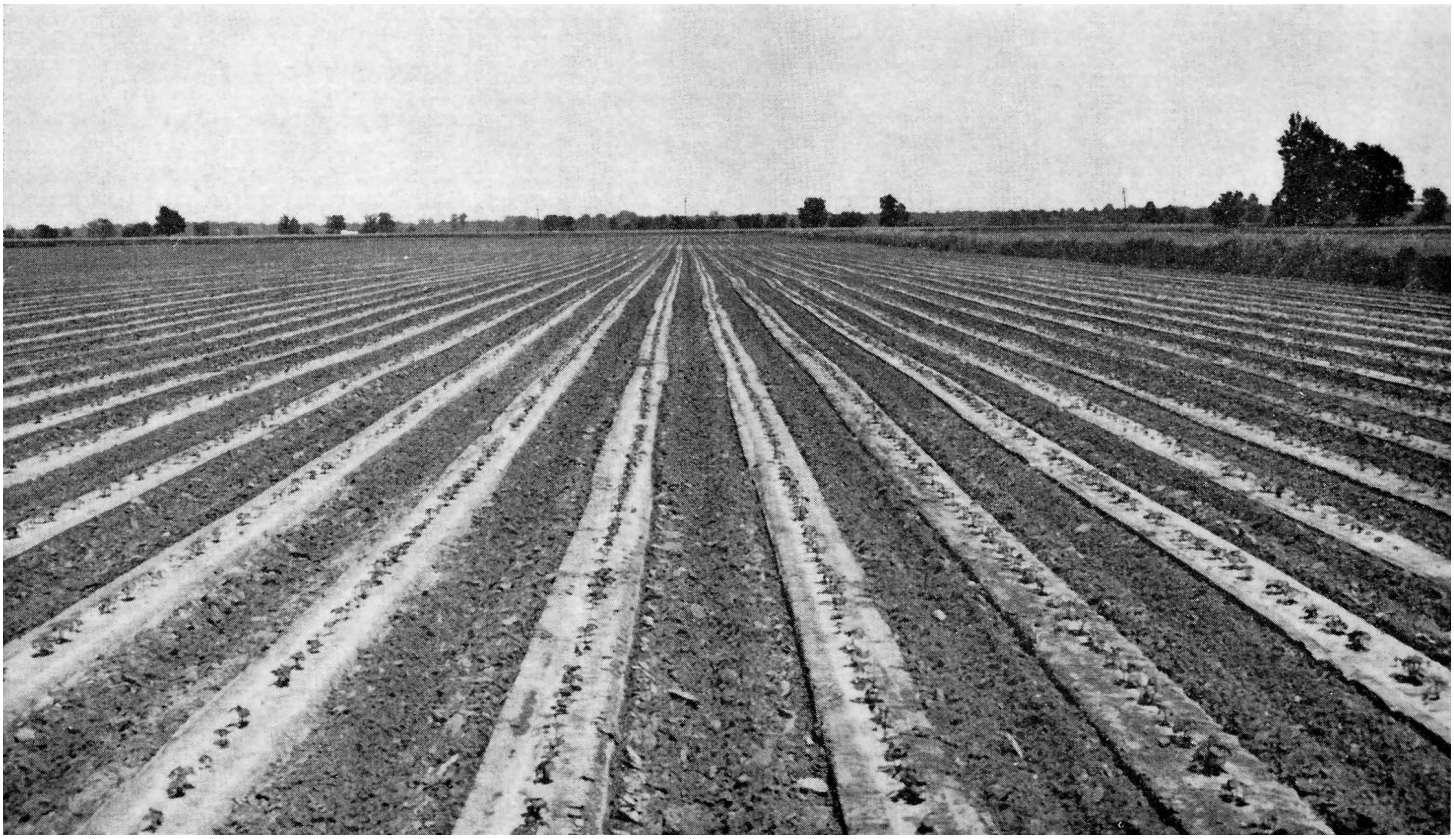

Figure 9.—**Cotton growing on Bosket fine sandy loam, 0 to 1 percent slopes. The soil has been treated with chemicals for weed control; only the middle of the row is cultivated.**

Runoff is slow to medium, and erosion is a moderate hazard. Good management includes adequate fertilization, proper tillage, and cross-slope farming. Under good management, this soil can be used continuously for cultivated crops that leave a large amount of residue. Close-growing crops can be grown year after year without special treatment.

Capability unit IIe-2

This unit consists of nearly level, well drained or moderately well drained soils of the Brandon, Freeland, Loring, and Memphis series. These soils formed in silt on uplands. They have a surface layer of friable silt loam. The subsoil is silt loam, silty clay loam, or clay loam. Freeland and Loring soils have a fragipan beginning at a depth of 20 to 36 inches. Below the fragipan is silt loam, loam, or fine sandy loam.

The soils of this unit make up about 3 percent of the county. They are moderate to low in natural fertility, medium to low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. In Freeland and Loring soils, the fragipan restricts the movement of water and the penetration of roots.

The soils of this unit are easy to work and are suited to a wide variety of row crops. Cotton, soybeans, corn, small grain, and grain sorghum grow well if management is good. Bermudagrass, johnsongrass, and tall fescue are suitable pasture grasses. Vetch, crimson clover, annual lespedeza, sericea lespedeza, and white clover are suitable legumes.

Because of the slope, runoff is medium and erosion is a moderate hazard. Nevertheless, cultivated crops that leave a large amount of residue can be grown year after year if fields are terraced, cultivated on the contour, properly tilled, and adequately fertilized. If fields are not terraced, grasses and legumes should be included regularly in the cropping system.

Capability unit IIw-1

This unit consists of somewhat poorly drained soils of the Calloway series. The slope ranges from 0 to 3 percent. These soils formed in silt on uplands. They have a surface layer of friable silt loam. A fragipan begins at a depth of 16 to 22 inches. It is 16 to 48 inches thick and is underlain by friable silt loam.

The soils of this unit make up about 4 percent of the county. They are low in natural fertility, low in organic-matter content, and strongly acid to very strongly acid. The available water capacity is moderate to low. Permeability is slow. The fragipan restricts the movement of water and the growth of plant roots.

If management is good, these soils are well suited to cotton, corn, soybeans, and grain sorghum. Rice is a suitable crop for areas where the slope is less than 1 percent. Bermudagrass, johnsongrass, and tall fescue are suitable pasture grasses. Annual lespedeza, sericea lespedeza, white clover, and vetch are suitable legumes.

Runoff is slow, and wetness is the principal hazard. Erosion is a secondary hazard in some areas. Good management includes adequate drainage, proper tillage, arrangement of crop rows, and adequate fertilization. Contour cultivation or cross-slope farming is needed on slopes to help control erosion. Well-managed fields can be used continuously for cultivated crops that leave a large amount of residue.

Capability unit IIw–2

This unit consists of level, somewhat poorly drained soils of the Hillemann and Crowley series. These soils formed in silt on uplands. They have a surface layer of friable silt loam. The upper part of the subsoil is silty clay loam mottled with red, and the lower part is silt loam or silty clay loam.

The soils of this unit make up less than 1 percent of the county. They are moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is slow to very slow.

If management is good, these soils are well suited to cotton, soybeans, grain sorghum, small grain, and rice. Bermudagrass, johnsongrass, and tall fescue are suitable grasses, and annual lespedeza, sericea lespedeza, white clover, and vetch are suitable legumes.

Runoff is slow, and wetness is the principal hazard. Good management includes adequate drainage, proper tillage, arrangement of crop rows, and adequate fertilization. Well-managed fields can be used continuously for cultivated crops that leave a large amount of residue.

Capability unit IIw–3

This unit consists of level to undulating, somewhat poorly drained soils of the Askew and Falaya series. These soils are on bottom lands. The surface layer is friable silt loam or fine sandy loam. The subsoil is silt loam, silty clay loam, or clay loam. It is underlain by loamy material.

The soils of this unit make up about 10 percent of the county. They are moderate to low in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderate to moderately slow.

If management is good, these soils are well suited to cotton, corn, soybeans, grain sorghum, and small grain. Bermudagrass, johnsongrass, and tall fescue are suitable grasses, and annual lespedeza, sericea lespedeza, crimson clover, and vetch are suitable legumes.

Runoff is slow, and wetness is a moderate hazard. Good management includes adequate drainage, proper tillage, arrangement of crop rows, and adequate fertilization. Cross-slope cultivation is needed on slopes. Well-managed fields can be used continuously for cultivated crops that leave a large amount of residue.

Capability unit IIIe–1

Bosket fine sandy loam, 3 to 8 percent slopes, is the only soil in this unit. This is a deep, well-drained soil on natural levees on bottom lands. The surface layer of friable fine sandy loam is underlain by loam or sandy clay loam. Below this is fine sandy loam, sandy loam, or loamy sand.

This soil makes up less than 1 percent of the county. It is moderate in natural fertility, medium in organic-matter content, and medium acid to strongly acid. The available water capacity is moderate, and permeability is moderate.

Cotton, corn, soybeans, and small grain grow well if management is good. Bermudagrass, johnsongrass, and tall fescue are suitable grasses, and vetch, crimson clover, annual lespedeza, sericea lespedeza, and white clover are suitable legumes.

Runoff is medium, and erosion is a severe hazard because of the slope. Good management includes cross-slope cultivation, proper tillage, the regular use of cover crops in the cropping system, and adequate fertilization. Cultivated crops that leave a large amount of residue can be grown continuously in well-managed fields.

Capability unit IIIe–2

This unit consists of gently sloping, well drained or moderately well drained soils of the Brandon, Freeland, Loring, and Memphis series. These soils formed in silt on uplands. They have a surface layer of friable silt loam. The subsoil is silt loam, silty clay loam, or clay loam. It is underlain by silt loam, fine sandy loam, or gravelly sandy loam. Freeland and Loring soils have a fragipan beginning at a depth of 20 to 36 inches.

The soils of this unit make up about 7 percent of the county. They are moderate to low in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow. In Freeland and Loring soils, the fragipan restricts the movement of water and the penetration of roots.

If management is good, these soils are suited to cotton, soybeans, corn, small grain, and grain sorghum. Bermudagrass, johnsongrass, and tall fescue are suitable grasses, and vetch, crimson clover, annual lespedeza, sericea lespedeza, and white clover are suitable legumes.

Because of the slope, runoff is medium and erosion is a severe hazard. Cultivated crops that leave a large amount of residue can be grown continuously if fields are terraced, farmed on the contour, properly tilled, and adequately fertilized.

Capability unit IIIw–1

This unit consists of level or nearly level, somewhat poorly drained or poorly drained soils of the Foley complex. These soils formed in silty sediments. Their surface layer is friable silt loam. The upper part of the subsoil is silty clay loam, and the lower part is silty clay loam or silt loam that, in most places, is high in content of sodium and magnesium.

The soils of this unit make up about 8 percent of the county. They are medium acid to very strongly acid in the upper part and slightly acid to moderately alkaline in the lower part. Natural fertility is low, the organic-matter content is low, and the available water capacity is moderate. Permeability is slow to very slow.

If management is good, these soils are suited to cotton, soybeans, and rice. Bermudagrass, johnsongrass, and tall fescue are suitable pasture grasses, and vetch, annual lespedeza, and white clover are suitable legumes.

Runoff is slow, and wetness is a severe hazard. Good management includes drainage, arrangement of crop rows, proper tillage, and adequate fertilization. Well-managed fields can be used continuously for cultivated crops that leave a large amount of residue.

If leveling operations are undertaken, onsite study is

necessary to determine the depth to the layer that has a concentration of sodium and magnesium. Cuts should be shallow enough to leave an adequate rooting zone above this layer.

Capability unit IIIw–2

This unit consists of level, poorly drained soils of the Forestdale and Fountain series. These soils are on bottom lands. They have a surface layer of silt loam or clay loam. The subsoil is silty clay or silty clay loam.

The soils of this unit make up about 7 percent of the county. They are moderate in natural fertility and low in organic-matter content. Forestdale soils are medium acid to strongly acid, and Fountain soils are neutral to moderately alkaline. The available water capacity is moderate, and permeability is moderately slow to slow.

If well managed, these soils are suited to cotton, soybeans, small grain, and rice. Bermudagrass, johnsongrass, and tall fescue are suitable grasses, and white clover, vetch, and annual lespedeza are suitable legumes.

Runoff is slow, and excess water is a severe hazard. Good management includes adequate drainage, proper tillage, arrangement of crop rows, and adequate fertilization. Well-managed fields can be used continuously for cultivated crops that leave a large amount of residue.

Capability unit IIIw–3

Alligator silty clay loam, 0 to 1 percent slopes, alkali subsoil, is the only soil in this unit. It occurs on bottom lands and is poorly drained. The surface layer of silty clay loam is underlain by plastic silty clay or clay.

This soil makes up about 8 percent of the county. It is moderate in natural fertility and medium in organic-matter content. The upper part of this soil, to a depth of about 20 to 30 inches, is strongly acid to very strongly acid. The lower part is mildly alkaline or moderately alkaline and is moderately high in content of sodium and magnesium. The available water capacity is moderate, and permeability is very slow.

This soil is suited to cotton, soybeans, and rice. Bermudagrass, johnsongrass, and tall fescue are suitable pasture grasses, and white clover, vetch, and annual lespedeza are suitable legumes.

Runoff is slow to ponded, and wetness is a severe hazard. Good management includes drainage, arrangement of crop rows, proper tillage, and adequate fertilization. Cultivated crops that leave a large amount of residue can be grown continuously in well-managed fields.

If leveling operations are undertaken, onsite study is necessary to determine the depth to the layer high in content of sodium and magnesium. Cuts should be shallow enough to leave an adequate rooting zone above this layer.

Capability unit IIIw–4

This unit consists of level or nearly level, poorly drained soils of the Alligator and Sharkey series. These soils are in slack-water areas on bottom lands. Their surface layer is silt loam to clay and is underlain by plastic clay.

The soils of this unit make up about 16 percent of the county. They are moderate or high in natural fertility, medium in organic-matter content, and neutral to very strongly acid. The available water capacity is moderate, and permeability is very slow.

If well managed, these soils are well suited to cotton, soybeans, grain sorghum, and rice. Bermudagrass, tall fescue, and dallisgrass are suitable grasses, and vetch and white clover are suitable legumes.

Runoff is very slow or ponded, and wetness is a severe hazard. Good management includes adequate drainage, proper tillage, arrangement of crop rows, and adequate fertilization. Well-managed fields can be used continuously for cultivated crops that leave a large amount of residue.

Capability unit IIIw–5

Calhoun silt loam is the only soil in this unit. This is a level, poorly drained soil that formed in silt. The surface layer is friable silt loam. The subsoil is firm silty clay loam. Below this is silty clay loam or silt loam.

This soil makes up about 4 percent of the county. It is low in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow to slow.

This soil is well suited to rice (fig. 10), soybeans, and small grain, and it is fairly well suited to cotton. Bermudagrass and tall fescue are suitable pasture grasses. White clover, annual lespedeza, and vetch are suitable legumes.

Runoff is slow to ponded, and wetness is a severe hazard. Good management includes adequate drainage, arrangement of crop rows, proper tillage, and adequate fertilization. Cultivated crops that leave a large amount of residue can be grown continuously in well-managed fields.

Capability unit IIIs–1

Bruno loamy sand is the only soil in this unit. This is a deep, level or nearly level, excessively drained soil on bottom lands. The surface layer of friable loamy sand is underlain by loose loamy sand or loamy fine sand.

This soil makes up about 2 percent of the county. It is low in natural fertility, low in organic-matter content, and slightly acid to medium acid. The available water capacity is low, and permeability is rapid.

This soil is well suited to fall-planted or early maturing crops. It is also suitable for small grain and watermelons and is fairly well suited to cotton and soybeans.

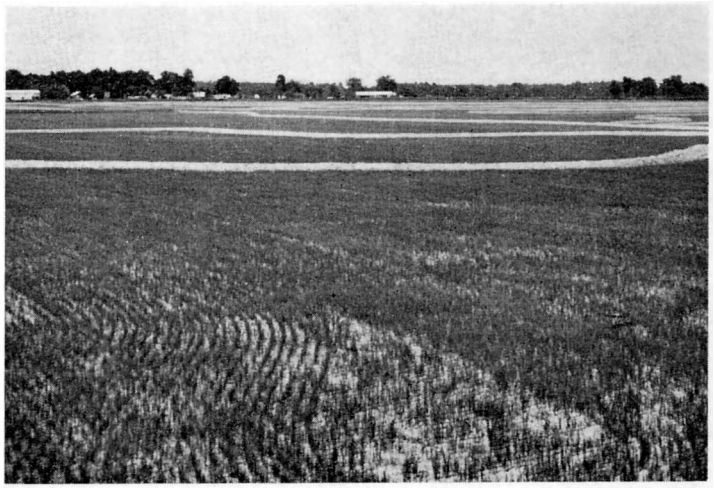

Figure 10.—**Rice growing on Calhoun silt loam.**

Coastal bermudagrass, weeping lovegrass, and sericea lespedeza are suitable pasture plants.

Droughtiness and soil blowing are severe hazards. If properly tilled and adequately fertilized, this soil can be used continuously for cultivated crops that leave a large amount of residue. Where soil blowing is most likely to occur, fields should be wind stripcropped, and crop residue should be left on the surface as late as possible in spring.

Capability unit IVe–1

This unit consists of moderately sloping, moderately well drained or well drained soils of the Brandon and Loring series. These soils are on uplands. The surface layer is friable silt loam or gravelly silt loam, and the subsoil is silty clay loam or loam that is gravelly in some areas. Below this is silt loam or gravelly sandy loam. Loring soils have a weakly developed fragipan beginning at a depth of 26 to 36 inches.

The soils of this unit make up about 5 percent of the county. They are low to moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow.

Runoff is rapid, and erosion is a very severe hazard. Consequently, these soils are poorly suited to cultivated crops. They are better suited to pasture, woodland, or wildlife habitat. Suitable pasture plants include bermudagrass, crimson clover, sericea lespedeza, and vetch. If fields are stripcropped on the contour, cultivated crops can be grown occasionally in a cropping system that includes grasses and legumes.

Capability unit VIe–1

This unit consists of moderately steep, well-drained soils of the Brandon and Saffell series. These soils are on uplands. The surface layer is friable silt loam, gravelly silt loam, or gravelly fine sandy loam. The subsoil is silty clay loam, clay loam, gravelly silty clay loam, gravelly clay loam, or gravelly sandy clay loam. Below this is gravelly sandy loam.

These soils make up about 7 percent of the county. They are low to moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate to low, and permeability is moderate to moderately slow.

Runoff is rapid, and erosion is a severe hazard. Consequently, these soils are not suited to cultivated crops, but they can be used for pasture, woodland, or wildlife habitat. Suitable pasture plants include bermudagrass, sericea lespedeza, crimson clover, and vetch.

Capability unit VIe–2

This unit consists of moderately steep, moderately well drained or well drained soils of the Loring and Memphis series. These soils formed in silt on uplands. The surface layer is friable silt loam, and the subsoil is silty clay loam. Below this is silt loam. Loring soils have a weakly developed fragipan beginning at a depth of 26 to 36 inches.

The soils of this unit make up about 2 percent of the county. They are moderate in natural fertility, low in organic-matter content, and medium acid to very strongly acid. The available water capacity is moderate, and permeability is moderately slow.

Runoff is rapid, and erosion is a severe hazard. Most of this acreage is wooded. Some small areas are in pasture, and a few cleared areas are idle.

These soils are not suited to cultivated crops. They are suitable for pasture, woodland, and wildlife habitat. Bermudagrass, crimson clover, and vetch are suitable pasture plants.

Capability unit VIs–1

Lafe silt loam is the only soil in this unit. This is a level or nearly level, poorly drained or somewhat poorly drained soil that formed in a thick layer of silt. The surface layer of friable silt loam is underlain by very firm silty clay loam that grades to silt loam.

This soil makes up about 2 percent of the county. It is low to very low in natural fertility and low to very low in organic-matter content. The surface layer is medium acid to very strongly acid. The subsoil is mildly alkaline to strongly alkaline and is high in sodium content. The available water capacity is very low, and permeability is very slow.

This soil is limited in use for crops because of the high concentration of sodium and magnesium commonly beginning at a depth of only a few inches. Cultivated crops frequently die before maturity. Bermudagrass, annual lespedeza, and vetch can be grown, but even under good management, yields of both forage crops and wood crops are very low.

Capability unit VIIe–1

This unit is made up of well drained or moderately well drained soils of the Brandon series and of Gullied land, on uplands. The slope ranges from 3 to 40 percent. Brandon soils have a surface layer of friable silt loam or gravelly silt loam. Their subsoil is silty clay loam, clay loam, gravelly silty clay loam, or gravelly clay loam. Below this is gravelly sandy loam. Gullied land consists of areas in which gullies form an intricate pattern and range from 2 to 30 feet in depth. The original surface layer and much of the subsoil have been removed by erosion, and the exposed material ranges from silt loam to gravelly sandy loam in texture.

This unit makes up less than 1 percent of the county. Natural fertility is low, the organic-matter content is low, the available water capacity is moderate to low, and permeability is moderately slow. The reaction ranges from medium acid to very strongly acid.

Steep slopes, rapid runoff, and severe erosion limit the use of these soils to pasture, woodland, or wildlife habitat. Bermudagrass and sericea lespedeza are suitable pasture plants. Areas of Gullied land that have a slope of less than 12 percent can be graded and reclaimed for pasture if intensive measures are taken to control erosion.

Predicted Yields

The predicted average acre yields of the principal crops grown in Greene County are shown in table 2. These estimates are based mainly on information obtained from experimental data and from farmers and others familiar with the soils and crops of the county.

The yields shown are not the highest that can be obtained, but they are yields that can be obtained by farmers who (1) use the proper equipment at the right time to prepare the soil, plant crops, control weeds, and harvest

321–861—69——3

TABLE 2.—*Predicted average acre yields of principal crops*

[These yields can be obtained under practices defined in the text. Absence of a figure indicates that the crop is not suited or is not commonly grown]

Mapping unit	Cotton	Soybeans	Rice	Wheat	Corn	Lespedeza [1]	Pasture	
							Common bermudagrass	Fescue
	Lbs. of lint	*Bu.*	*Bu.*	*Bu.*	*Bu. in ear*	*Tons*	*A.U.M.*[2]	*A.U.M.*[2]
Alligator silty clay loam, 0 to 1 percent slopes	550	27	95			1.2	6.5	7.5
Alligator silty clay loam, 0 to 1 percent slopes, alkali subsoil	575	25	95			1.2	6.5	7.5
Alligator silt loam, 1 to 3 percent slopes	550	25	95			1.2	6.5	7.5
Askew fine sandy loam, 0 to 1 percent slopes	680	34		40	68	1.6	9.0	9.0
Askew fine sandy loam, gently undulating	675	33		40	65	1.6	9.0	9.0
Bosket fine sandy loam, 0 to 1 percent slopes	725	34		40	70	2.0	8.5	9.0
Bosket fine sandy loam, gently undulating	650	34		40	78	1.8	8.0	9.0
Bosket fine sandy loam, 3 to 8 percent slopes	540	28		38	60	1.2	8.0	8.5
Brandon silt loam, 1 to 3 percent slopes, eroded	570	26		40	55	1.0	4.5	
Brandon silt loam, 3 to 8 percent slopes, eroded	525	22		34	45	.9	4.0	
Brandon silt loam, 8 to 12 percent slopes, eroded							4.0	
Brandon soils, 8 to 12 percent slopes						.9	4.0	
Brandon soils, 12 to 20 percent slopes							4.0	
Brandon soils, 12 to 20 percent slopes, eroded							4.0	
Brandon soils, 20 to 40 percent slopes							4.0	
Bruno loamy sand	375			25	27		3.5	3.0
Calhoun silt loam	400	30	90	30	42	1.2	6.0	7.0
Calloway silt loam, 0 to 1 percent slopes	550	28	95	38	48	1.6	7.0	8.0
Calloway silt loam, 1 to 3 percent slopes	540	26	85	36	45	1.5	7.0	8.0
Collins silt loam	675	35		45	80	1.7	9.0	8.0
Falaya silt loam	565	21		22	45	2.0	8.0	8.5
Foley complex, 0 to 1 percent slopes	525	28	85	38	48	1.6	6.5	8.0
Foley complex, 1 to 3 percent slopes	500	26	80	36	45	1.5	6.5	8.0
Forestdale silt loam	600	32	80	35	60	1.0	7.5	9.0
Fountain silt loam	625	36	85	45	60	1.5	8.0	9.0
Fountain clay loam	600	35	90	40	50	1.5	8.0	9.0
Freeland silt loam, 1 to 3 percent slopes, eroded	640	29		40	70	1.6	7.0	8.0
Freeland silt loam, 3 to 8 percent slopes, eroded	550	24		32	60	1.1	6.5	6.0
Gullied land								
Hillemann and Crowley silt loams (all)	570	30	90	42	56	1.5	7.0	8.0
Iuka loam	675	35		40	68	1.5	9.0	9.0
Lafe silt loam						.7	3.0	
Loring silt loam, 1 to 3 percent slopes, eroded	570	26		40	55	1.6	7.0	8.0
Loring silt loam, 3 to 8 percent slopes, eroded	525	22		34	45	1.0	5.5	7.0
Loring silt loam, 3 to 8 percent slopes, severely eroded						.7	5.0	6.0
Loring silt loam, 8 to 12 percent slopes, eroded							5.0	
Loring silt loam, 8 to 12 percent slopes, severely eroded							4.5	
Loring and Memphis silt loams, 12 to 20 percent slopes							4.5	
Memphis silt loam, 1 to 3 percent slopes, eroded	650	33		36	55	1.6	7.0	8.0
Memphis silt loam, 3 to 8 percent slopes, eroded	625	30		35	45		6.5	7.0
Ochlockonee loam	670	40		46	72	1.5	9.0	8.0
Saffell gravelly fine sandy loam, 12 to 20 percent slopes, eroded								
Sharkey clay	475	40	85	35		1.25	7.0	8.0

[1] Yields vary with rainfall; highest yields are obtained during wet periods.

[2] A.U.M. is animal-unit-months, a term used to express the number of months that one animal unit can graze 1 acre without injury to the pasture. An animal unit is one cow or steer, five hogs, or seven sheep.

crops; (2) follow a systematic program to control insects and plant diseases; (3) select crop varieties well suited to the soil and to the type of farming operation; and (4) apply fertilizer and lime in amounts indicated by soil tests. Commonly, drainage systems are installed to remove excess water, and irrigation is used during dry periods.

Engineering Uses of the Soils [3]

Soil engineering deals with soil as structural material and as foundation material upon which structures rest. Important steps in soil engineering are locating the various

[3] J. C. GOODWIN, agricultural engineer, Soil Conservation Service, helped prepare this section.

soils, determining their engineering properties, correlating those properties with the requirements of the job, and selecting the best available material for each job.

Engineers of the United States Bureau of Public Roads and the Soil Conservation Service collaborated with soil scientists of the Soil Conservation Service in obtaining the data reported in this section.

Information in this publication can be used to--

1. Make studies that will aid in selecting and developing sites for industrial, business, residential, and recreational purposes.
2. Assist in designing drainage and irrigation structures and in planning dams and other structures for soil and water conservation.
3. Make preliminary evaluations of soil and ground conditions that will aid in selecting locations for highways, pipelines, and airports and in planning detailed investigations at selected locations.
4. Locate probable sources of sand and gravel and other construction material.
5. Correlate performance of engineering structures with soils and thus gain information that will be useful in planning the design and in maintaining the structures.
6. Determine the suitability of the soils for cross-country movement of vehicles and construction equipment.
7. Supplement information obtained from other sources for the purpose of making soil maps and reports that can be used readily by engineers.
8. Make other preliminary estimates for construction in a particular area when laboratory data are not available.

With the use of the soil map for identification, the engineering interpretations reported here can be useful for many purposes. It should be emphasized that they may not eliminate the need for sampling and testing at the site of specific engineering works involving heavy loads and excavations deeper than the depths of layers here reported. Even in these situations, the soil map is useful for planning more detailed field investigations and for suggesting the kinds of problems that may be expected.

At many construction sites, major soil variations occur within the depth of proposed excavations and several different soils may occur within short distances. If the maps, descriptions, and other data in this survey are used to plan detailed soil investigations at construction sites, a minimum number of soil samples will be needed for laboratory testing. After testing the soils and observing their behavior, in place, under various conditions, engineers should be able to anticipate to some extent the properties of the various types of soil wherever they are mapped.

Some terms used by soil scientists may not be familiar to engineers. Many of these terms are defined in the Glossary at the back of this survey. Information and interpretations of most significance to engineers are presented in tables 3, 4, and 5.

Engineering classification systems

Most highway engineers classify soil materials in accordance with the system approved by the American Association of State Highway Officials (AASHO) (*1*). In this system soil materials are classified in seven principal groups ranging from A–1, which consists of gravelly soils having high bearing capacity, to A–7, which consists of clay soils having low bearing capacity when wet. The relative engineering value of the soils can be indicated by a group index number, which ranges from 0 for the best materials to 20 for the poorest. The group index number is shown in parentheses following the soil group symbol, for example A–4(8).

Some engineers prefer to use the Unified classification system (*23*) developed by the Corps of Engineers, U.S. Army. In this system soil materials are identified as coarse grained (eight classes), fine grained (six classes), or highly organic (one class).

Engineering test data

To help evaluate the soils in Greene County for engineering purposes, samples of three of the principal soils were tested according to standard procedures. The results are given in table 3.

The moisture-density data are obtained by compacting soil material at successively higher moisture content. Assuming that the compactive effort remains constant, the density of the compacted material increases until the optimum moisture content is reached. After that, the density decreases with increase in moisture content. The highest dry density obtained in the compaction test is termed "maximum dry density." Moisture-density data are important in earthwork because, as a rule, optimum stability is obtained if the soil is compacted to about the maximum dry density when it is at approximately the optimum moisture content.

The relative proportions of the different size particles in the soil samples are determined through mechanical analysis made by a combination of sieve and hydrometer methods.

The tests for the plastic limit and liquid limit measure the effect of water on the consistence of the soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from a semisolid to a plastic state; the moisture content at which this change occurs is the plastic limit. As the moisture content is further increased, the material changes from a plastic to a liquid state; the moisture content at which this change occurs is the liquid limit. The plasticity index is the numerical difference between the liquid limit and the plastic limit (*2*). It indicates the range in moisture content within which a soil is in a plastic condition.

Estimated properties

In table 4 are estimates of some of the physical and chemical properties of soils that affect engineering work.

The rates of permeability are based on the movement of water through the soils in their undisturbed state. These rates depend largely on the texture and structure of the soils.

Available water capacity, measured in inches per inch of soil depth, is the approximate amount of capillary water in the soil at field capacity. When the soil is air dry, this amount of water will wet the soil material to a depth of 1 inch without deeper percolation.

Reaction, which indicates the degree of acidity or alkalinity of a soil, is expressed in pH values.

TABLE 3.—*Engineering*

[Tests performed by the Arkansas Highway Department in cooperation with U.S. Department of Commerce, Bureau of Public

Soil name and location	Parent material	Report number	Depth	Moisture-density data [1]	
				Maximum dry density	Optimum moisture
			In.	*Lb./cu. ft.*	*Pct.*
Alligator silt loam: NW¼NW¼NE¼ sec. 3, T. 18 N., R. 3 E. (Modal)	Thin deposit of silt over clayey alluvium.	28–12–3	11–32	84. 1	32. 1
Brandon silt loam: SE¼SE¼ sec. 30, T. 17 N., R. 5 E. (Modal)	Thin deposit of silt over Coastal Plain material.	28–10–2 28–10–5	2–7 15–35	107. 5 113. 8	14. 6 15. 1
Collins silt loam: NE¼SW¼SW¼ sec. 18, T. 17 N., R. 5 E. (Modal)	Alluvium	28–11–2	6–15 25–72	102. 6 103. 0	14. 1 18. 2

[1] Based on AASHO Designation: T 99–57, Method A (*1*).

[2] Mechanical analysis according to AASHO Designation: T 88–57 (*1*). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method, and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method, and the

TABLE 4.—*Estimated properties*

Soil series and map symbols	Depth to seasonal high water table	Depth from surface (typical profile)	Classification
			USDA texture
	Feet	*Inches*	
Alligator:			
AgA, AlA	0–½	0–4	Silty clay loam
		4–47	Clay
AmB	0–½	0–4	Silt loam
		4–47	Clay
Askew: AsA, AsB	½–2	0–11	Fine sandy loam
		11–31	Silty clay loam
		31–50	Sandy loam
Bosket: BoA, BoB, BoC	4	0–19	Fine sandy loam
		19–37	Sandy clay loam
		37–48	Sandy loam
Brandon:			
BrB2, BrC2, BrD2	10+	0–7	Silt loam
		7–35	Silty clay loam
		35–50	Gravelly sandy loam
BsD, BsE, BsE2, BsF— Silt loam part	10+	0–7	Silt loam
		7–35	Silty clay loam
		35–50	Gravelly sandy loam
Gravelly silt loam part	10+	0–7	Gravelly silt loam
		7–35	Gravelly silty clay loam
		35–50	Gravelly sandy clay loam
Bruno: Bu	4	0–52	Loamy sand
		52–72	Sand

See footnotes at end of table.

test data

Roads (BPR), according to standard procedures of the American Association of State Highway Officials (AASHO) (*1*)]

Percentage passing sieve [2]—					Liquid limit	Plasticity index	Classification	
3/8-in.	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)			AASHO	Unified [3]
					Pct.			
100. 0	99. 7	99. 6	99. 0	98. 3	80. 0	39	A–7–6(20)	MH
100. 0	99. 7	99. 2	92. 0	72. 0	----------	[4] NP	A–4(8)	ML
[5] 97. 8	95. 4	94. 2	84. 5	60. 4	34	13	A–6(7)	CL
----------	----------	----------	----------	99. 4	31	10	A–4(8)	CL–ML
----------	100. 0	99. 7	99. 5	97. 9	----------	NP	A–4(8)	ML

material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analysis data used in this table are not suitable for naming textural classes for soils.

[3] SCS and BPR have agreed to consider that all soils having plasticity indexes within two points from A-line are to be given a borderline classification. An example of borderline classification obtained by this use is CL–ML.

[4] Nonplastic.

[5] 100 percent passed the 3/4-inch sieve.

of soils significant in engineering

Classification—Continued		Percentage passing sieve—		Permeability [1]	Available water capacity [2]	Reaction	Shrink-swell potential
Unified	AASHO	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
				Inches per hour	*Inches per inch of soil depth*	*pH*	
CL	A–6	100	95–96	0. 2–0. 63	0. 21	4. 5–5. 5	Moderate.
CH or MH	A–7	100	98–99	<0. 2	. 19	4. 5–5. 5	Very high.
ML or CL	A–4	100	95–96	0. 63–2. 0	. 23	4. 5–5. 5	Low.
CH or MH	A–7	100	98–99	<0. 2	. 19	4. 5–5. 5	Very high.
ML	A–4	100	50–60	0. 63–2. 0	. 15	5. 0–6. 5	Low.
ML or CL	A–6	100	70–75	0. 2–0. 63	. 21	4. 5–5. 5	Moderate.
SC	A–2	100	10–15	0. 63–2. 0	. 18	4. 5–5. 5	Low.
ML	A–4	100	50–60	0. 63–2. 0	. 15	5. 1–7. 3	Low.
ML or CL	A–6	100	60–70	0. 2–0. 63	. 15	5. 1–6. 0	Moderate.
SC	A–2	100	18–22	0. 63–2. 0	. 18	5. 1–6. 0	Low.
ML	A–4	90–100	60–80	0. 63–2. 0	. 23	4. 5–5. 5	Low.
ML or CL	A–6	90–100	70–80	0. 63–2. 0	. 21	4. 5–5. 5	Moderate.
GM or GP	A–2	20–50	10–15	2. 0–6. 3	. 08	4. 5–5. 5	Low.
ML	A–4	90–100	60–80	0. 63–2. 0	. 23	4. 5–5. 5	Low.
ML or CL	A–6	90–100	70–80	0. 63–2. 0	. 21	4. 5–5. 5	Moderate.
GM or GP	A–2	20–50	10–15	2. 0–6. 3	. 08	4. 5–5. 5	Low.
ML	A–2 or A–4	70–85	60–70	0. 63–2. 0	. 16	4. 5–5. 5	Low.
ML or CL	A–6	60–80	55–75	0. 63–2. 0	. 18	4. 5–5. 5	Low.
GC, GM, or GP	A–2	20–50	10–15	0. 63–2. 0	. 12	4. 5–5. 5	Low.
SM	A–2	100	18–20	>6. 3	. 08	5. 6–6. 5	Low.
SM	A–2	100	10–15	>6. 3	. 08	5. 6–6. 5	Low.

TABLE 4.—*Estimated properties of soils*

Soil series and map symbols	Depth to seasonal high water table	Depth from surface (typical profile)	Classification: USDA texture
	Feet	*Inches*	
Calhoun: Ca	0	0–16	Silt loam
		16–38	Silty clay loam
		38–50	Silt loam
Calloway: CIA, CIB	½–2	0–8	Silt loam
		8–25	Silt loam
		25–41	Silty clay loam
		41–55	Silt loam
Collins: Co	2–4	0–72	Silt loam
Crowley	2	0–13	Silt loam
		13–47	Silty clay loam
		47–60	Silt loam
Falaya: Fa	1–2	0–6	Silt loam
		6–72	Silt loam
Foley: FcA, FcB	0–1	0–21	Silt loam
For properties of Fountain soil, refer to Fountain series; for properties of Lafe soil, refer to Lafe series.		21–34	Silty clay loam
		34–49	Silty clay loam
Forestdale: Fe	0–1	0–6	Silt loam
		6–36	Silty clay
		36–50	Silty clay loam
Fountain:			
Fn	0–1	0–13	Silt loam
		13–48	Silty clay loam
Fo	0–1	0–5	Clay loam
		5–48	Silty clay loam
Freeland: FrB2, FrC2	2–4	0–7	Silt loam
		7–24	Silty clay loam
		24–34	Silt loam
		34–43	Silty clay loam
		43–52	Fine sandy loam
Gullied land: Gu. Properties variable.			
Hillemann: Hc	2	0–16	Silt loam
For properties of Crowley soil, refer to Crowley series.		16–24	Silty clay loam
		24–60	Silt loam
Iuka: Iu	1–2	0–8	Loam
		8–40	Fine sandy loam
		40–50	Very fine sandy loam
Lafe: La	½–3	0–4	Silt loam
		4–8	Silt loam
		8–31	Silty clay loam
		31–50	Silt loam
Loring: LgB2, LgC2, LgC3, LgD2, LgD3, LmE	10+	0–11	Silt loam
For properties of Memphis soil in LmE, refer to Memphis series.		11–33	Silty clay loam
		33–45	Silt loam
		45–65	Silt loam
Memphis: MeB2, MeC2	10+	0–12	Silt loam
		12–46	Silty clay loam
		46–84	Silt loam
Ochlockonee: Oc	1–2	0–8	Loam
		8–36	Fine sandy loam
		36–72	Silt loam

See footnotes at end of table.

significant in engineering—Continued

Classification—Continued		Percentage passing sieve—		Permeability [1]	Available water capacity [2]	Reaction	Shrink-swell potential
Unified	AASHO	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
				Inches per hour	*Inches per inch of soil depth*	*pH*	
ML or CL	A–4	100	85–99	0.63–2.0	.23	5.6–6.5	Low.
CL	A–6	100	98–99	0.2 –0.63	.21	4.5–6.0	Moderate.
ML or CL	A–4	100	95–98	0.63–2.0	.23	4.5–6.0	Low.
ML or CL	A–4	100	96–97	0.63–2.0	.23	5.6–6.5	Low.
ML or CL	A–4	100	96–98	0.63–2.0	.23	4.5–5.5	Low.
CL	A–6	100	98–99	0.2 –0.63	.21	4.5–5.5	Moderate.
ML or CL	A–4	100	98–99	0.2 –0.63	.23	4.5–5.5	Low.
ML or CL	A–4	100	98–99	0.63–2.0	.23	5.1–6.0	Low.
ML	A–4	100	90–99	0.63–2.0	.23	5.1–6.0	Low.
ML or CL	A–6	100	95–99	0.2 –0.63	.21	5.1–6.0	Moderate.
ML	A–4	100	85–95	0.63–2.0	.23	6.1–7.3	Low.
ML or CL	A–4	100	98–99	0.63–2.0	.23	5.1–6.0	Low.
ML or CL	A–4	100	98–99	0.63–2.0	.23	4.5–5.5	Low.
ML or CL	A–4	100	98–99	0.63–2.0	.23	4.5–5.5	Low.
CL	A–6	100	65–75	0.2–0.63	[3]<.1	4.5–5.5	Moderate.
CL	A–6	100	65–75	0.2–0.63	[3]<.1	6.6–8.4	Moderate.
ML or CL	A–4	100	60–65	0.63–2.0	.23	5.6–6.5	Low.
CH	A–7	100	94–96	<0.2	.19	5.1–6.0	Very high.
CH	A–7	100	75–80	<0.2	.19	5.1–6.0	Very high.
ML or CL	A–4	100	65–75	0.63–2.0	.23	5.6–7.3	Low.
CL	A–6	100	55–70	0.2–0.63	.21	6.6–8.4	Moderate.
CL	A–6	100	65–75	0.2–0.63	.21	5.6–7.3	Moderate.
CL	A–6	100	55–70	0.2–0.63	.21	6.6–8.4	Moderate.
ML or CL	A–4	100	80–85	0.63–2.0	.23	4.5–5.5	Low.
CL	A–6	100	85–90	0.2–0.63	.21	4.5–5.5	Moderate.
ML or CL	A–4	100	80–85	0.63–2.0	.23	4.5–5.5	Low.
CL	A–6	100	80–85	0.2–0.63	.21	4.5–5.5	Moderate.
ML	A–4	100	75–80	0.63–2.0	.15	4.5–5.5	Low.
ML or CL	A–4	100	90–96	0.63–2.0	.23	5.1–6.5	Low.
CL	A–6	100	90–95	<0.2	.21	5.1–6.0	Moderate.
ML or CL	A–4	100	85–95	0.2–0.63	[3].1	5.1–6.0	Low.
ML	A–4	100	75–80	0.63–6.3	.17	5.6–6.5	Low.
ML	A–4	100	60–85	0.63–2.0	.15	4.5–5.5	Low.
ML	A–4	100	80–85	0.63–2.0	.22	4.5–5.5	Low.
ML	A–4	100	98–99	0.63–2.0	.23	5.1–6.0	Low.
ML	A–4	100	98–99	0.63–2.0	.23	7.4–9.0	Low.
CL	A–6	100	98–99	[4]<0.1	[3]<.1	7.4–9.0	Moderate.
ML or CL	A–4	100	98–99	[4]<0.1	[3]<.1	7.4–9.0	Low.
ML	A–4	100	98–99	0.63–2.0	.23	5.1–6.0	Low.
CL	A–6	100	98–99	0.2–0.63	.21	5.1–6.0	Moderate.
ML or CL	A–4	100	98–99	0.2–0.63	.23	5.1–6.0	Low.
ML or CL	A–4	100	98–99	0.63–2.0	.23	5.1–6.0	Low.
ML or CL	A–4	100	97–99	0.63–2.0	.23	4.5–6.0	Low.
CL	A–6	100	98–99	0.2–0.63	.21	4.5–6.0	Moderate.
ML or CL	A–4	100	98–99	0.63–2.0	.23	4.5–6.0	Low.
ML	A–2	100	60–70	0.63–6.3	.17	4.5–6.0	Low.
ML	A–4	100	50–60	0.63–2.0	.15	4.5–6.0	Low.
ML	A–4	100	60–80	0.63–2.0	.23	4.5–6.0	Low.

TABLE 4.—*Estimated properties of soils*

Soil series and map symbols	Depth to seasonal high water table	Depth from surface (typical profile)	Classification
			USDA texture
	Feet	*Inches*	
Saffell: SaE2	10+	0–5	Gravelly fine sandy loam
		5–15	Gravelly sandy loam
		15–39	Gravelly sandy clay loam
		39–72	Gravelly sandy loam
Sharkey: Sc	0–1	0–4	Clay
		4–72	Clay

[1] Permeability is based on soil structure without compaction.
[2] Values shown are midpoint in range.

TABLE 5.—*Engineering*

Soil series and map symbols	Suitability as source of—			Suitability for winter grading	Soil features affecting suitability for—	
	Topsoil	Roadfill	Sand and gravel		Farm ponds	Agricultural drainage
Alligator (AgA, AlA, AmB).	Poor	Poor	Unsuitable	Very poor: poor drainage; high clay content; high water table.	Soil features favorable for excavated ponds.	Poor drainage
Askew (AsA, AsB)	Fair	Fair	Poor for sand; unsuitable for gravel.	Fair: somewhat poor drainage; seasonal high water table.	High seepage rate	Somewhat poor drainage.
Bosket (BoA, BoB, BoC).	Good	Good	Poor for sand; unsuitable for gravel.	Fair: good drainage; seasonal high water table.	High seepage rate	Good natural drainage.
Brandon (BrB2, BrC2, BrD2, BsD, BsE, BsE2, BsF).	Fair	Good	Good for gravel; unsuitable for sand.	Good: good drainage.	Permeable gravelly material.	Good natural drainage.
Bruno (Bu)	Poor	Good	Fair to good for sand; unsuitable for gravel.	Fair: good drainage; seasonal high water table.	High seepage rate	Good natural drainage.
Calhoun (Ca)	Poor	Fair	Unsuitable	Poor: poor drainage.	Soil features favorable for excavated ponds.	Poor drainage
Calloway (CIA, CIB)	Fair	Fair	Unsuitable	Fair: somewhat poor drainage.	Soil features favorable for excavated ponds.	Somewhat poor drainage.
Collins (Co)	Fair	Fair	Unsuitable	Fair: moderately good drainage; occasionally flooded.	Soil features favorable for excavated ponds.	Moderately good drainage.
Crowley	Fair	Poor	Unsuitable	Poor: poor drainage.	Soil features favorable for excavated ponds.	Poor drainage

significant in engineering—Continued

Classification—Continued		Percentage passing sieve—		Permeability [1]	Available water capacity [2]	Reaction	Shrink-swell potential
Unified	AASHO	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
				Inches per hour	*Inches per inch of soil depth*	*pH*	
SM	A–2 or A–4	60–85	30–50	2.0–6.3	.08	4.5–5.5	Low.
GM	A–2	60–85	30–35	2.0–6.3	.08	4.5–5.5	Low.
GC	A–2	30–50	10–15	0.63–2.0	.12	4.5–5.5	Low.
GC or GM	A–2	30–50	10–15	2.0–6.3	.08	4.5–5.5	Low.
CH	A–7	100	90–100	<0.2	.19	5.6–7.3	Very high.
CH	A–7	100	90–100	<0.2	.19	6.1–7.8	Very high.

[3] High in content of sodium; moisture held but not available.
[4] High in content of sodium; permeability very slow in dispersed horizons.

interpretations of soils

Soil features affecting suitability for—Continued					Degree and kind of limitation for sewage lagoons
Highway location	Irrigation	Irrigation dikes and levees	Land leveling	Terraces	
Low traffic-supporting capacity; high shrink-swell potential; high water table.	Low intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable; moderately high salt content at depth of 20 to 30 inches in alkali subsoil phase.	No erosion hazard	Slight: very slow permeability.
Moderate traffic-supporting capacity.	Moderate intake rate; moderate available water capacity.	High strength and stability.	Soil features favorable.	No erosion hazard	Severe: sand below depth of 36 inches.
Moderate traffic-supporting capacity; moderate strength and stability; some slopes of more than 5 percent.	Moderate intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable.	No erosion hazard	Severe: rapid permeability; coarse sand below depth of 40 inches.
Erosion hazard on slopes of more than 5 percent.	Low intake rate; slopes of more than 2 percent.	Moderate strength and stability; slopes of more than 2 percent.	Soil features favorable where slopes are less than 2 percent.	Erosion hazard; unsuitable on slopes of more than 8 percent.	Severe: rapid permeability in gravelly strata.
Soil features favorable.	High intake rate	Low strength and stability.	Soil features favorable.	High intake rate; short, complex slopes; low strength and stability; unsuitable.	Severe: rapid permeability.
Moderate traffic-supporting capacity; high water table.	Low intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable.	No erosion hazard	Slight: very slow permeability.
Moderate traffic-supporting capacity; high water table.	Low intake rate; moderate available water capacity.	Moderate strength and stability.	Fragipan at depth of 16 to 22 inches.	Slight or no erosion hazard; not needed; slopes less than 3 percent.	Slight: permeability restricted by fragipan.
Low traffic-supporting capacity; flood hazard.	Moderate intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable.	No erosion hazard	Moderate: flood hazard.
Low traffic-supporting capacity; high water table.	Low intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable.	No erosion hazard	Slight: very slow permeability.

TABLE 5.—*Engineering interpretations*

Soil series and map symbols	Suitability as source of—			Suitability for winter grading	Soil features affecting suitability for—	
	Topsoil	Roadfill	Sand and gravel		Farm ponds	Agricultural drainage
Falaya (Fa)	Fair	Fair	Unsuitable	Fair: somewhat poor drainage; occasionally flooded.	Sand and gravel below depth of 5 feet in places; soil features favorable for excavated ponds.	Somewhat poor drainage.
Foley (FcA, FcB)	Fair	Poor	Unsuitable	Poor: somewhat poor drainage.	Soil features favorable for excavated ponds; water likely to contain salts.	Somewhat poor to poor drainage; benefits may not warrant cost in some areas.
Forestdale (Fe)	Poor	Fair	Fair to unsuitable; sand below depth of 4 feet in some places.	Poor: poor drainage; seasonal high water table.	Sand and gravel below depth of 5 feet in places; soil features favorable for excavated ponds.	Poor drainage.
Fountain (Fn, Fo)	Poor	Poor	Unsuitable	Very poor: poor drainage; high water table.	High shrink-swell potential; soil features favorable for excavated ponds.	Poor drainage.
Freeland (FrB2, FrC2)	Fair	Fair	Fair; sand below depth of 3 feet.	Good: moderately good drainage.	Sand below depth of 3 feet; soil features favorable for impounded ponds.	Moderately good natural drainage.
Gullied land (Gu). Properties variable.						
Hillemann (Hc). For properties of Crowley soil, refer to Crowley series.	Fair	Poor	Unsuitable	Poor: somewhat poor drainage.	Soil features favorable for excavated ponds; water likely to contain salts.	Somewhat poor drainage.
Iuka (Iu)	Fair	Fair	Poor for sand; unsuitable for gravel.	Fair: somewhat poor drainage; seasonal high water table.	High seepage rate	Somewhat poor drainage.
Lafe (La)	Poor	Poor	Unsuitable	Poor: poor drainage; dispersed.	Soil features favorable for excavated ponds; water likely to contain salts.	Benefits do not warrant cost.
Loring (LgB2, LgC2, LgC3, LgD2, LgD3, LmE). For properties of Memphis soil in LmE, refer to Memphis series.	Fair	Fair	Fair to unsuitable; gravel and sand at depth of 5 feet or more in places.	Good: moderately good drainage.	Severe erosion hazard; soil features favorable for excavated and impounded ponds.	Moderately good natural drainage.
Memphis (MeB2, MeC2)	Good	Fair	Fair to unsuitable; gravel and sand at depth of 5 feet or more in places.	Good: good drainage.	Severe erosion hazard; soil features favorable for impounded ponds.	Good natural drainage.
Ochlockonee (Oc)	Fair	Good	Fair for sand; unsuitable for gravel.	Good: good drainage.	High seepage rate	Good natural drainage.
Saffell (SaE2)	Fair	Good	Good for gravel; fair to poor for sand.	Good: good drainage.	Permeable gravelly material.	Good natural drainage.
Sharkey (Sc)	Poor	Poor	Unsuitable	Very poor: poor drainage; high clay content; high water table.	Soil features favorable for excavated ponds.	Poor drainage.

of soils—Continued

Soil features affecting suitability for—Continued					Degree and kind of limitation for sewage lagoons
Highway location	Irrigation	Irrigation dikes and levees	Land leveling	Terraces	
Low traffic-supporting capacity; flood hazard.	Moderate intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable.	No erosion hazard	Moderate: flood hazard.
Low traffic-supporting capacity; high water table.	Low intake rate; moderate available water capacity.	Moderate strength and stability.	High salt content at depth of 15 to 32 inches.	No erosion hazard	Slight: very slow permeability.
Low traffic-supporting capacity; flood hazard.	Moderate intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable.	No erosion hazard	Moderate: flood hazard; sand below depth of 4 feet in some places.
Low traffic-supporting capacity; high water table; high shrink-swell potential.	Low intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable.	No erosion hazard	Slight: very slow permeability.
High traffic-supporting capacity.	Moderate intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable where slopes are less than 2 percent.	Erosion hazard; good structure difficult to maintain.	Severe: sand below depth of 36 inches.
Moderate traffic-supporting capacity; high water table.	Low intake rate; moderate available water capacity.	Moderate strength and stability.	High salt content below depth of 20 inches.	No erosion hazard	Slight: slow permeability.
Moderate traffic-supporting capacity; flood hazard; high water table.	Moderate intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable.	No erosion hazard	Severe: flood hazard; sand below depth of 50 inches.
Low traffic-supporting capacity; high water table; high salt content; severe erosion hazard.	Very low intake rate; benefits do not warrant cost; very low yields.	Low strength and stability; severe erosion hazard; high salt content.	High salt content; not suitable.	Salts toxic to plants	Slight: very slow permeability.
Moderate traffic-supporting capacity; erosion hazard.	Low intake rate; moderate available water capacity.	Moderate strength and stability.	Fragipan at depth of 20 to 36 inches; most slopes more than 2 percent.	Severe erosion hazard; good structure difficult to maintain.	Moderate: slow permeability; slopes of more than 3 percent in most places.
High traffic-supporting capacity; severe erosion hazard.	Moderate intake rate; moderate available water capacity.	Moderate strength and stability.	Soil features favorable where slopes are less than 2 percent.	Severe erosion hazard; good structure difficult to maintain; not suitable on slopes of more than 8 percent.	Moderate: slow permeability; slopes of more than 3 percent in most places.
Moderate traffic-supporting capacity; flood hazard.	Moderate intake rate; moderate available water capacity.	Low strength and stability; high sand content in places.	Soil features favorable.	No erosion hazard	Severe: flood hazard; sand below depth of 50 inches.
High traffic-supporting capacity.	Moderate intake rate; low available water capacity.	Moderate strength and stability.	Slopes of more than 12 percent.	Erosion hazard; slopes of more than 12 percent.	Severe: high gravel content; slopes more than 12 percent.
Low traffic-supporting capacity; high water table; high shrink-swell potential.	Moderate intake rate when dry, very low when wet.	Low strength and stability.	Soil features favorable.	No erosion hazard	Slight: very slow permeability.

Shrink-swell potential is an indication of the volume change to be expected with a change in moisture content. In general, soils classed as CH and A–7 have high shrink-swell potential. Clean sand and most other nonplastic materials have low shrink-swell potential.

Engineering interpretations

Table 5 lists all of the soil series in the county. It gives suitability ratings for specific purposes, names soil features that affect certain engineering practices, and shows the degree of limitation of the soils for use as sewage disposal fields.

The data in table 5 are based on the test data shown in table 3, on the estimates given in table 4, and on actual field experience. Following are explanations of the items in table 5.

Topsoil is needed to maintain vegetation for control of erosion on embankments, road shoulders, ditches, and cut slopes.

Roadfill is used in the construction of roads in areas that are flooded, are swampy, have a high water table, or are ponded for long periods.

Sand and gravel is used for subbase and base courses, for pavements, and for surfacing county roads.

Soils were rated for winter grading on the basis of drainage and on the workability of the soil material when it is wet.

Farm ponds in this county are generally constructed by excavation or by building an earthen embankment across a natural drainageway.

Agricultural drainage is essential to the use of many of the soils on bottom lands. It is also essential on soils that have poor drainage as a result of a slowly permeable layer. Drainage generally is improved by land grading and by open ditches.

Irrigation during part of the growing season is beneficial on many of the soils in the county. Land leveling is necessary to irrigate some soils.

Irrigation dikes and levees are difficult to construct in some soils that contain a large amount of clay or a large amount of sand. Clayey soils have high shrink-swell potential and consequently crack during the process of drying. Sandy soils permit water to seep through the dike or levee.

Land leveling reshapes the land surface by the removal of knolls, mounds, and ridges and by the filling of swales, potholes, and gullies. It increases the efficiency of irrigation and improves surface drainage.

Terraces are essential for effective erosion control on many of the steeper soils in the county.

TABLE 6.—*Degree and kind of limitation for building*

Map symbol	Mapping unit	Foundations [1]	Septic-tank filter fields
AgA AlA AmB	Alligator silty clay loam, 0 to 1 percent slopes. Alligator silty clay loam, 0 to 1 percent slopes, alkali subsoil. Alligator silt loam, 1 to 3 percent slopes.	Severe: low bearing capacity; high shrink-swell potential; high water table; frequent flooding in some areas; poor drainage.	Severe: slow percolation: high shrink-swell potential; high water table; frequent flooding in some areas; poor drainage.
AsA AsB	Askew fine sandy loam, 0 to 1 percent slopes. Askew fine sandy loam, gently undulating.	Slight	Moderate: moderate percolation; occasional high water table; somewhat poor drainage.
BoA BoB BoC	Bosket fine sandy loam, 0 to 1 percent slopes. Bosket fine sandy loam, gently undulating. Bosket fine sandy loam, 3 to 8 percent slopes.	Slight	Slight
BrB2 BrC2 BrD2 BsD	Brandon silt loam, 1 to 3 percent slopes, eroded. Brandon silt loam, 3 to 8 percent slopes, eroded. Brandon silt loam, 8 to 12 percent slopes, eroded. Brandon soils, 8 to 12 percent slopes.	Slight	Moderate: moderate percolation.
BsE BsE2	Brandon soils, 12 to 20 percent slopes. Brandon soils, 12 to 20 percent slopes, eroded.	Moderate: moderately steep slopes.	Moderate: moderate percolation; moderately steep slopes.
BsF	Brandon soils, 20 to 40 percent slopes.	Severe: steep slopes	Severe: slow percolation; steep slopes.
Bu	Bruno loamy sand.	Slight	Slight
Ca	Calhoun silt loam.	Severe: high water table; low bearing capacity; poor drainage.	Severe: slow percolation; high water table; poor drainage.

See footnotes at end of table.

Many of the soils in the county have limitations for use as sewage lagoons because they are underlain by sand, some because they are subject to flooding, and a few because they are too steep.

The interpretations in table 5 are also useful in evaluating the suitability of the soils for highway construction. For example, Alligator, Sharkey, and other soils that have high shrink-swell potential are not suitable for use as subgrade material. Many soils in the county have a high water table or are ponded. Roads on these soils should be constructed on fill sections that are provided with underdrains and surface drains.

The natural levees and ridges are generally the best sites for roads because they have good surface drainage. Some soils on natural levees are made up of sandy material that is suitable for use in pavement foundations. Most of the medium-textured soils are suitable for farm and field roads.

Nonfarm Uses of the Soils

In table 6 the soils are rated according to their suitability for selected nonfarm uses. The degree of limitation shown in table 6 is a composite rating that reflects, to a depth of 5 feet, all of the soil features that affect the use of a specified soil for a particular purpose. The rating is *slight* if the limitation is not serious and is easy to overcome. It is *moderate* if the limitation generally can be corrected by practical means. It is *severe* if the limitation is difficult to overcome and the use of the soil generally is impractical.

The factors considered in evaluating the soils for dwellings with public or community sewage systems or with septic-tank filter fields are percolation rate, depth to the water table, flood hazard, drainage, shrink-swell potential, soil productivity, slope, and bearing capacity. A percolation rate slower than 75 minutes per inch constitutes a severe limitation; a rate of between 45 and 75 minutes per inch, a moderate limitation. A water table at a depth of less than 4 feet constitutes a moderate to severe limitation. Frequent flooding indicates that a flood occurs 1 year in 3. Shrink-swell potential refers to the expansion and contraction of the soil with changes in moisture content, productivity refers to soil fertility, and slope refers to a deviation from flat or level. Bearing capacity is based on estimates of the maximum load that a soil can support when compacted. Engineers and others should not apply specific values to the ratings of estimated bearing capacity given in table 6.

sites, recreational facilities, and trafficways

Recreation			Light industry [1]	Trafficways
Campsites	Picnic grounds	Intensive play areas		
Severe: poor trafficability; frequent flooding in some areas; poor drainage.	Severe: poor trafficability; poor drainage.	Severe: poor trafficability; poor drainage.	Severe: low bearing capacity; high water table; high shrink-swell potential; frequent flooding in some areas; poor drainage.	Severe: low traffic-supporting capacity; high water table; frequent flooding in some areas; poor drainage.
Moderate: moderate trafficability.	Moderate: moderate trafficability.	Moderate: moderate trafficability.	Moderate: moderate shrink-swell potential; occasional high water table.	Moderate: moderate traffic-supporting capacity; occasional high water table.
Moderate if slope is more than 5 percent; otherwise, slight.	Slight	Moderate if slope is more than 5 percent; otherwise, slight.	Moderate if slope is more than 5 percent; otherwise, slight.	Slight.
Moderate if slope is more than 5 percent; otherwise, slight.	Moderate if slope is more than 5 percent; otherwise, slight.	Moderate if slope is more than 5 percent; otherwise, slight.	Moderate if slope is more than 5 percent; otherwise, slight.	Slight.
Severe: moderately steep slopes.	Moderate: moderately steep slopes.	Severe: moderately steep slopes.	Severe: moderately steep slopes.	Moderate: moderately steep slopes; moderate erodibility.
Severe: steep slopes	Severe: steep slopes	Severe: steep slopes	Severe: steep slopes	Severe: steep slopes; high erodibility.
Moderate: poor trafficability.	Moderate: poor trafficability.	Moderate: poor trafficability.	Slight	Slight.
Severe: poor trafficability; poor drainage.	Severe: poor trafficability; poor drainage.	Severe: poor trafficability; poor drainage.	Severe: high water table; low bearing capacity; poor drainage.	Severe: high water table; low traffic-supporting capacity; poor drainage.

TABLE 6.—*Degree and kind of limitation for building*

Map symbol	Mapping unit	Foundations [1]	Septic-tank filter fields
ClA ClB	Calloway silt loam, 0 to 1 percent slopes. Calloway silt loam, 1 to 3 percent slopes.	Moderate: high water table; moderate bearing capacity; somewhat poor drainage.	Severe: high water table; slow percolation; somewhat poor drainage.
Co	Collins silt loam.	Severe: frequent flooding; slight if protected from flooding.	Severe: frequent flooding; moderate if protected from flooding.
Fa	Falaya silt loam.	Severe: high water table; low bearing capacity; somewhat poor drainage; frequent flooding; moderate if protected from flooding.	Severe: slow percolation; high water table; somewhat poor drainage; frequent flooding; moderate if protected from flooding.
FcA FcB	Foley complex, 0 to 1 percent slopes.[2] Foley complex, 1 to 3 percent slopes.[2]	Severe: high water table; low bearing capacity; somewhat poor drainage.	Severe: high water table; slow percolation; somewhat poor drainage.
Fe	Forestdale silt loam.	Severe: low bearing capacity; moderate shrink-swell potential; high water table; poor drainage.	Severe: slow percolation; moderate shrink-swell potential; high water table; poor drainage.
Fn Fo	Fountain silt loam. Fountain clay loam.	Severe: low bearing capacity; high water table; poor drainage.	Severe: slow percolation; high water table; poor drainage.
FrB2 FrC2	Freeland silt loam, 1 to 3 percent slopes, eroded. Freeland silt loam, 3 to 8 percent slopes, eroded.	Slight	Severe: slow percolation
Gu	Gullied land. All properties are variable.		
Hc	Hillemann and Crowley silt loams.	Moderate: high water table; moderate shrink-swell potential; moderate bearing capacity; somewhat poor to poor drainage.	Severe: high water table; moderate shrink-swell potential; slow percolation; somewhat poor to poor drainage.
Iu	Iuka loam.	Moderate: high water table	Severe: high water table; slow percolation.
La	Lafe silt loam.	Severe: high water table; low bearing capacity; low productivity.	Severe: high water table; slow percolation; low productivity.
LgB2 LgC2	Loring silt loam, 1 to 3 percent slopes, eroded. Loring silt loam, 3 to 8 percent slopes, eroded.	Slight	Moderate: moderate percolation.
LgC3	Loring silt loam, 3 to 8 percent slopes, severely eroded.	Slight	Moderate: moderate percolation.

See footnotes at end of table.

sites, recreational facilities, and trafficways—Continued

Recreation			Light industry [1]	Trafficways
Campsites	Picnic grounds	Intensive play areas		
Moderate: moderate trafficability; somewhat poor drainage.	Moderate: moderate trafficability; somewhat poor drainage.	Moderate: moderate trafficability; somewhat poor drainage.	Moderate: high water table; moderate bearing capacity.	Moderate: high water table; moderate traffic-supporting capacity.
Moderate: moderate trafficability; slight to moderate if protected from flooding.	Moderate: moderate trafficability; slight to moderate if protected from flooding.	Moderate: moderate trafficability; slight to moderate if protected from flooding.	Severe: frequent flooding; moderate bearing capacity; moderate if protected from flooding.	Severe: frequent flooding; moderate traffic-supporting capacity; moderate if protected from flooding.
Severe: poor trafficability; somewhat poor drainage; moderate if protected from flooding.	Severe: poor trafficability; somewhat poor drainage; moderate if protected from flooding.	Severe: poor trafficability; somewhat poor drainage; moderate if protected from flooding.	Severe: high water table; low bearing capacity; moderately corrosive, frequent flooding; moderate if protected from flooding.	Severe: high water table; moderate traffic-supporting capacity; somewhat poor drainage; frequent flooding; moderate if protected from flooding.
Moderate: moderate trafficability; somewhat poor drainage.	Moderate: moderate trafficability; somewhat poor drainage.	Moderate: moderate trafficability; somewhat poor drainage.	Moderate: high water table; low bearing capacity; moderately corrosive.	Moderate: high water table; moderate traffic-supporting capacity; somewhat poor drainage.
Severe: poor trafficability; poor drainage.	Severe: poor trafficability; poor drainage.	Severe: poor trafficability; poor drainage.	Severe: high water table; low bearing capacity; moderate shrink-swell potential; poor drainage.	Severe: high water table; low traffic-supporting capacity; poor drainage.
Severe: poor trafficability; poor drainage.	Severe: poor trafficability; poor drainage.	Severe: poor trafficability; poor drainage.	Severe: high water table; low bearing capacity; poor drainage.	Severe: high water table; low traffic-supporting capacity; poor drainage.
Moderate if slope is more than 5 percent; otherwise, slight.	Moderate if slope is more than 5 percent; otherwise, slight.	Moderate: moderate trafficability; slight if slope is less than 5 percent.	Moderate if slope is more than 5 percent; otherwise, slight.	Moderate: moderate erodibility.
Moderate: moderate trafficability; somewhat poor to poor drainage.	Moderate: moderate trafficability; somewhat poor to poor drainage.	Moderate: moderate trafficability; somewhat poor to poor drainage.	Moderate: moderate bearing capacity; moderate shrink-swell potential; moderately corrosive; high water table; somewhat poor to poor drainage.	Moderate: high water table; moderate traffic-supporting capacity; somewhat poor to poor drainage.
Moderate: moderate trafficability.	Moderate: moderate trafficability.	Moderate: moderate trafficability.	Moderate: high water table; moderate bearing capacity.	Moderate: high water table; moderate traffic-supporting capacity.
Severe: poor trafficability.	Severe: poor trafficability.	Severe: poor trafficability.	Severe: high water table; low bearing capacity; highly corrosive.	Severe: high water table; low traffic-supporting capacity.
Slight	Slight	Moderate if slope is more than 5 percent; otherwise, slight.	Moderate if slope is more than 5 percent; otherwise, slight.	Slight.
Moderate: moderate trafficability if slope is more than 5 percent.	Moderate: moderate trafficability.	Moderate if slope is more than 5 percent; moderate trafficability.	Moderate if slope is more than 5 percent.	Slight.

TABLE 6.—*Degree and kind of limitation for building*

Map symbol	Mapping unit	Foundations [1]	Septic-tank filter fields
LgD2	Loring silt loam, 8 to 12 percent slopes, eroded.	Slight	Moderate: moderate percolation.
LgD3	Loring silt loam, 8 to 12 percent slopes, severely eroded.	Moderate: low productivity	Moderate: moderate percolation; low productivity.
LmE	Loring and Memphis silt loams, 12 to 20 percent slopes.	Moderate: moderately steep slopes.	Severe: moderately steep slopes; slow percolation.
MeB2 MeC2	Memphis silt loam, 1 to 3 percent slopes, eroded. Memphis silt loam, 3 to 8 percent slopes, eroded.	Slight	Slight
Oc	Ochlockonee loam.	Moderate if subject to flooding; otherwise, slight.	Moderate if subject to flooding; otherwise, slight.
SaE2	Saffell gravelly fine sandy loam, 12 to 20 percent slopes, eroded.	Moderate: moderately steep slopes.	Moderate: moderately steep slopes.
Sc	Sharkey clay.	Severe: low bearing capacity; high shrink-swell potential; high water table; frequent flooding in some areas; poor drainage.	Severe: slow percolation; high shrink-swell potential; high water table; frequent flooding in some areas; poor drainage.

[1] Engineers and others should not apply specific values to estimated bearing capacity.

The factors considered in rating the soils for recreational facilities are trafficability, slope, drainage, and flood hazard. Trafficability in recreation areas depends on soil features that affect the movement of people on foot and on bicycles or other light vehicles. Thus, the limitation commonly is slight on loamy soils that are not likely to be flooded and that have a water table at a depth of more than 30 inches during heavy use. It is severe on clayey soils.

Light industry refers to structures of less than three stories. Factors considered in these ratings are bearing capacity, shrink-swell potential, depth to the water table, flood hazard, drainage, slope, and corrosion potential.

The ratings for trafficways are based on traffic-supporting capacity, erodibility, slope, depth to the water table, bearing capacity, flood hazard, drainage, and shrink-swell potential. Traffic-supporting capacity is the ability of the undisturbed soil to support moving loads.

Although the detailed soil map and the ratings in table 6 are guides for evaluating most soils for the specified uses, a detailed investigation at the site is needed because as much as 15 percent of an area designated on the map as a specific soil may consist of spots of other soils.

Use of the Soils for Woodland [4]

Originally, forests covered all of Greene County except a few small saline areas. The principal commercial trees on the uplands were shortleaf pine, upland oaks, yellow-poplar, sweetgum, and hickory. On bottom lands, the trees were chiefly bottom-land oaks, sweetgum, tupelo-gum, cypress, ash, sycamore, and pecan. Now, as a result of overcutting, wildfire, and landclearing, forests cover less than 20 percent of the county. Practically all of the woodland is in small tracts that are privately owned. Much of this acreage is on Crowley Ridge (fig. 11).

Management of woodland can be planned more efficiently if soils are grouped according to those characteristics that affect the growth of trees and management of the stands. For this reason, the soils of Greene County have been placed in 15 woodland groups. Each group consists of soils that have about the same suitability for wood crops, require about the same management, and have about the same potential productivity.

Table 7 lists the woodland groups in the county, shows the mapping symbols of the soils in each group, and gives a brief description of the soils. Also shown are the potential productivity of the soils for selected kinds of trees; the kinds of trees to be preferred both in managing existing stands and for planting; and ratings for soil-related hazards and limitations that affect the management of the soils of each group. To find the woodland group of any given soil, refer to the "Guide to Mapping Units" at the back of this survey.

The potential productivity of a soil for a specified kind of tree is expressed as a site index. A site index is the height in feet that free-growing trees of a given species will attain in a given number of years. The site index range shown for each group of soils in table 7 is based

[4] J. T. BEENE, forester, Soil Conservation Service, assisted in the preparation of this section.

sites, recreational facilities, and trafficways—Continued

Recreation			Light industry [1]	Trafficways
Campsites	Picnic grounds	Intensive play areas		
Moderate: slopes	Slight	Moderate: slopes	Moderate: slopes	Moderate: moderate erodibility.
Severe: slopes; poor trafficability.	Severe: poor trafficability.	Severe: slopes; poor trafficability.	Moderate: slopes	Moderate: moderate erodibility.
Severe: moderately steep slopes.	Moderate: moderately steep slopes.	Severe: moderately steep slopes.	Severe: moderately steep slopes.	Moderate: moderately steep slopes; moderate erodibility.
Slight	Slight	Moderate if slope is more than 5 percent; otherwise, slight.	Moderate if slope is more than 5 percent; otherwise, slight.	Slight.
Moderate if subject to flooding; otherwise, slight.	Moderate if subject to flooding; otherwise, slight.	Moderate if subject to flooding; otherwise, slight.	Moderate if subject to flooding; otherwise, slight.	Moderate: moderate traffic-supporting capacity.
Severe: moderately steep slopes.	Severe: moderately steep slopes.	Severe: moderately steep slopes.	Severe: moderately steep slopes.	Moderate: moderately steep slopes.
Severe: poor trafficability; frequent flooding in some areas; poor drainage.	Severe: poor trafficability; poor drainage.	Severe: poor trafficability; poor drainage.	Severe: high water table; low bearing capacity; high shrink-swell potential; frequent flooding in some areas; poor drainage.	Severe: high water table; low bearing capacity; high shrink-swell potential; frequent flooding in some areas; poor drainage.

[2] Foley soil only. For ratings of Fountain and Lafe parts of this complex, see respective mapping unit.

on tree height at 30 years of age for cottonwoods and 50 years of age for all other trees. The site index was determined from tree measurements on soils in each group. The estimated board-foot production, based on specific levels of management, is keyed to the site index of the principal kinds of trees for each woodland group.

The preferred species shown in table 7 were selected on the basis of their growth rate, their commercial value, the quality of their wood products, and the hazards and limitations of management.

Erosion hazard is rated according to the risk of erosion on well-managed woodland that is not protected by special practices. It is *slight* where a small loss of soil is expected. The hazard is *moderate* where there is a moderate loss of soil if runoff is not controlled and the vegetative cover is not adequate for protection. It is *severe* where steep or moderately steep slopes, rapid runoff, slow infiltration and permeability, or past erosion makes the soil susceptible to severe erosion.

The equipment limitation is *slight* if there are no restrictions on the type of equipment or the time of the year that the equipment can be used, except for short periods after a heavy rainfall. It is *moderate* if slopes are moderately steep, if the use of heavy equipment is restricted by wetness in winter and early in spring, or if the use of equipment would damage tree roots to some extent. In Greene County, a moderate limitation means that in most years equipment can be used only from March through November, or that its use is limited because slopes are moderately steep or the hazard of erosion is severe. The limitation is *severe* if many types of equipment cannot be used, if equipment cannot be used more than 3 months a year, or if use of equipment would severely damage the roots of trees and the structure and stability of the soil. In this county, a severe limitation means that the use of equipment generally is limited to the driest months, or July through October.

Seedling mortality occurs to some extent even under the most favorable conditions. In Greene County, some of the adverse conditions that affect the survival of planted or naturally occurring seedlings are unfavorable soil texture, poor drainage, and flooding. Seedling mortality is *slight* if not more than 25 percent of the planted seedlings die. It is *moderate* if 25 to 50 percent of the seedlings die, and *severe* if more than 50 percent die.

On Crowley Ridge, the soils on ridgetops and on the upper part of slopes have somewhat lower potential productivity for trees than those on the lower part of slopes. Also, the trees most suitable for the upper part of slopes differ from those most suitable for the lower part. Thus, the ratings shown in table 7 are not applicable for those areas. Onsite investigations are necessary.

Use of the Soils for Wildlife [5]

The kinds and abundance of wildlife in an area are closely related to the soils. Soil characteristics and land use largely determine the vegetation and other elements that

[5] ROY A. GRIZZELL, JR., biologist, Soil Conservation Service, helped prepare this section.

Figure 11.—**Naturally seeded stand of shortleaf pine on Brandon silt loam, 1 to 3 percent slopes, eroded, on Crowley Ridge.**

TABLE 7.—*Woodland groups and*

Woodland group, map symbols, and description of soils	Potential productivity		
	Selected species	Estimated range in site index [1]	Average yearly growth [2]
			Bd. ft./acre Doyle rule
Group 1 (AsA, AsB, BoA, BoB, BoC). Level to undulating, somewhat poorly drained to well-drained loamy soils on bottom lands. Runoff is slow to medium, permeability is moderate to moderately slow, and the available water capacity is moderate.	Cottonwood	105+	585+
	Cherrybark oak	100+	410+
	Water oak	100+	410+
	Willow oak	100+	410+
	Sweetgum	100+	430+
Group 2 (Co, Iu, Oc). Level, moderately well drained or well drained loamy soils on bottom lands, subject to occasional overflow. Runoff is slow, permeability is moderate to moderately rapid, and the available water capacity is moderate.	Cottonwood	105+	585+
	Sweetgum	105+	500+
	Loblolly pine	85 to 94	325 to 420
	Shortleaf pine	80 to 89	310 to 450
	Cherrybark oak	105+	470+

See footnotes at end of table.

make up a favorable habitat. Wildlife habitat can be improved by planting choice food plants, managing existing vegetation, and locating water impoundments where water is scarce.

The soils of Greene County, as a whole, are productive of plants that provide food, cover, and protection for many kinds of wildlife. If cover is sufficient, cultivated areas support good populations of bobwhites and rabbits. Doves feed on grain and weed seeds throughout the year and quickly concentrate in areas where choice food is available. Soils used to grow rice, millet, browntop millet, soybeans, and grain sorghum commonly are flooded in winter and attract large numbers of migrating ducks. Wood ducks remain throughout the year.

In Greene County, there are large areas of level, fertile soils suitable as sites for impoundments, and there is an abundant supply of good-quality underground water. These areas can be developed for commercial fish farming, for catfish, buffalo fish, and bait minnows. The principal sport fish in the county are bass, bluegill, redear sunfish, crappie, and catfish. On Crowley Ridge, the water in ponds and streams commonly is turbid. Generally, the addition of fertilizer or organic matter helps to reduce turbidity and to increase fish production.

The soils of Greene County have been placed in six groups according to their suitability as habitat for specified kinds of wildlife. These groups are described briefly in the following paragraphs. To find the wildlife group in which a soil has been placed, refer to the "Guide to Mapping Units." Table 8, p. 54, lists the plants that provide food for wildlife and shows the relative suitability of each of these plants as food for specified kinds of wildlife. Table 9, p. 55, shows the relative suitability of the same plants to the soils of each wildlife group.

Wildlife group 1

In this group are poorly drained to somewhat poorly drained, level or nearly level soils of the Calhoun, Calloway, Crowley, and Hillemann series. These soils formed in thick deposits of silt on broad flats or in depressions. They make up about 9 percent of the county.

The crops commonly grown on these soils include rice, soybeans, corn, cotton, grain sorghum, and small grain. Lespedeza and vetch are suitable legumes, and bermudagrass, ryegrass, and tall fescue are suitable grasses.

The soils in this group are well suited to choice food plants for bobwhites, doves, rabbits, squirrels, deer, and ducks. They provide good sites for impoundments for fish and ducks.

Wildlife group 2

In this group are nearly level to steep, well drained and moderately well drained soils of the Brandon, Freeland, Loring, Memphis, and Saffell series and Gullied land. These soils formed in thick deposits of silt or in thin deposits of silt over gravelly material. They occupy about 25 percent of the county, mainly on and adjacent to Crowley Ridge.

Some areas are not suitable for cultivation because of the slope and the hazard of erosion. Cultivated areas are used mainly for soybeans, corn, grain sorghum, and small grain. Bermudagrass and ryegrass are suitable grasses, and lespedeza, white clover, and vetch are suitable legumes.

The soils of this group are well suited to plants that provide choice food for bobwhites, doves, rabbits, squirrels, and deer. All of the soils, except the Brandon and Saffell, are suitable as sites for farm ponds. Brandon and Saffell soils generally are too permeable to be used for this purpose.

Wildlife group 3

Lafe silt loam is the only soil in this group. This is a poorly drained or somewhat poorly drained soil that formed in thick deposits of silt. It is high in content of sodium and magnesium. This group makes up about 2 percent of the county.

factors in woodland management

Preferred species—		Management problems		
In existing stands	For planting	Erosion hazard	Equipment limitation	Seedling mortality
Cottonwood, cherrybark oak, Nuttall oak, Shumard oak, cow oak, water oak, willow oak, sweetgum, persimmon, sycamore.	Cottonwood, cherrybark oak, Nuttall oak, cow oak, sweetgum, sycamore.	Slight	Slight	Slight.
Black cherry, loblolly pine, shortleaf pine, cherrybark oak, cottonwood, yellow-poplar, black walnut, Shumard oak, southern red oak, water oak, willow oak, white oak, sweetgum, basswood, white ash, cow oak.	Sweetgum, cherrybark oak, yellow-poplar, black walnut, cottonwood, loblolly pine, shortleaf pine, cow oak.	Slight	Slight	Slight.

TABLE 7.—*Woodland groups and*

Woodland group, map symbols, and description of soils	Potential productivity		
	Selected species	Estimated range in site index [1]	Average yearly growth [2]
			Bd. ft./acre Doyle rule
Group 3 (Bu). Level or nearly level, excessively drained sandy soils on bottom lands. Runoff is slow, permeability is rapid, and the available water capacity is low.	Cottonwood	95 to 104	415 to 565
	Cherrybark oak	90 to 99	290 to 395
	Water oak	90 to 99	290 to 395
	Willow oak	90 to 99	290 to 395
	Sweetgum	90 to 99	310 to 420
Group 4 (Sc). Level, poorly drained clayey soils on bottom lands. Runoff is very slow or ponded, permeability is very slow, and the available water capacity is moderate.	Cottonwood	95 to 104	415 to 565
	Cherrybark oak	90 to 99	290 to 395
	Sweetgum	90 to 99	310 to 420
	Water oak	90 to 99	290 to 395
Group 5 (ClA, ClB, FrB2, FrC2, LgB2, MeB2, MeC2). Level to gently sloping, somewhat poorly drained to well-drained silty soils on uplands. Runoff is slow to medium, permeability is slow to moderately slow, and the available water capacity is moderate.	Loblolly pine	65 to 74	130 to 210
	Shortleaf pine	60 to 69	125 to 205
	Cherrybark oak	90 to 99	290 to 395
	Sweetgum	85 to 94	260 to 360
	Black oak	75 to 84	155 to 230
Group 6 (LgC2, LgD2). Gently sloping or moderately sloping, moderately well drained or well drained silty soils on uplands. Runoff is medium, permeability is moderately slow, and the available water capacity is moderate.	Loblolly pine	65 to 74	130 to 210
	Shortleaf pine	60 to 69	125 to 205
	Cherrybark oak	90 to 99	290 to 395
	Sweetgum	85 to 94	260 to 360
	Black oak	75 to 84	155 to 230
Group 7 (LmE). Moderately steep, moderately well drained or well drained silty soils on uplands. Runoff is medium to rapid, permeability is moderately slow, and the available water capacity is moderate.	Loblolly pine	65 to 74	130 to 210
	Shortleaf pine	60 to 69	125 to 205
	Cherrybark oak	90 to 99	290 to 395
	Sweetgum	85 to 94	260 to 360
	Black oak	75 to 84	155 to 230
Group 8 (Fa). Level, somewhat poorly drained, silty alluvial soils subject to occasional overflow. Runoff is slow, permeability is moderate, and the available water capacity is moderate.	Loblolly pine	80 to 89	260 to 355
	Cherrybark oak	90 to 99	290 to 395
	Sweetgum	95 to 104	370 to 485
	Nuttall oak	100 to 109	410+
	Cottonwood	100 to 109	495 to 665
Group 9 (Ca). Level, poorly drained silty soils on uplands. Runoff is slow to ponded, permeability is slow, and the available water capacity is moderate.	Loblolly pine	60 to 69	85 to 160
	Cherrybark oak	75 to 84	155 to 230
	Sweetgum	70 to 79	140 to 205
	Water oak	70 to 79	120 to 185
Group 10 (BrB2, BrC2, BrD2, BsD, BsE, BsE2, BsF, SaE2). Nearly level to steep, well-drained, gravelly sandy soils and silty soils underlain by sandy, gravelly material, on uplands. Runoff is medium to rapid, permeability is moderately slow, and the available water capacity is moderate.	Loblolly pine	60 to 69	85 to 160
	Shortleaf pine	55 to 64	85 to 165
	Cherrybark oak	80 to 89	195 to 280
	Sweetgum	80 to 89	215 to 280
	Black oak	70 to 79	120 to 185
Group 11 (Fe). Level, poorly drained silty soils on bottom lands. Runoff is slow, permeability is slow, and the available water capacity is moderate to low.	Cottonwood	80 to 94	235 to 400
	Cherrybark oak	80 to 89	195 to 280
	Water oak	80 to 89	195 to 280
	Willow oak	80 to 89	195 to 280
	Sweetgum	80 to 89	215 to 280
Group 12 (AgA, AlA, AmB). Level or nearly level, poorly drained clayey soils on bottom lands. Runoff is slow to ponded, permeability is very slow, and the available water capacity is moderate.	Cherrybark oak	70 to 79	120 to 185
	Water oak	70 to 79	120 to 185
	Willow oak	70 to 79	120 to 185
	Sweetgum	70 to 79	140 to 205

See footnotes at end of table.

factors in woodland management—Continued

Preferred species—		Management problems		
In existing stands	For planting	Erosion hazard	Equipment limitation	Seedling mortality
Cherrybark oak, cottonwood, Shumard oak, water oak, willow oak, sweetgum, sycamore.	Cherrybark oak, cottonwood, sweetgum, sycamore.	Slight	Moderate	Moderate.
Green ash, cypress, cottonwood, cherrybark oak, Nuttall oak, overcup oak, water oak, willow oak, persimmon, sweetgum, sycamore.	Green ash, cypress, cottonwood, Nuttall oak, sycamore.	Slight	Severe	Severe.
All slopes: loblolly pine, shortleaf pine. Middle and lower slopes: cherrybark oak, sweetgum, Shumard oak, yellow-poplar, black walnut, water oak, willow oak, black oak, southern red oak, white oak, basswood, sycamore, black cherry, white ash, cottonwood.	All slopes: loblolly pine, shortleaf pine. Middle and lower slopes: cherrybark oak, sweetgum, Shumard oak, yellow-poplar, black walnut, white ash, black oak, sycamore.	Slight	Slight	Slight.
All slopes: loblolly pine, shortleaf pine. Middle and lower slopes: cherrybark oak, sweetgum, yellow-poplar, black walnut, Shumard oak, water oak, willow oak, black oak, southern red oak, white oak, basswood, sycamore, black cherry, white ash, cottonwood.	All slopes: loblolly pine, shortleaf pine. Middle and lower slopes: cherrybark oak, sweetgum, Shumard oak, yellow-poplar, black walnut, white ash, black oak, sycamore.	Moderate	Moderate	Slight.
Loblolly pine, shortleaf pine, cherrybark oak, sweetgum, yellow-poplar, black walnut, Shumard oak, water oak, willow oak, black oak, southern red oak, white oak, basswood, sycamore, black cherry, white ash, cottonwood.	Loblolly pine, shortleaf pine, cherrybark oak, sweetgum, Shumard oak, yellow-poplar, black walnut, white ash, black oak, sycamore.	Severe	Severe	Slight.
Loblolly pine, cherrybark oak, sweetgum, Nuttall oak, cottonwood, Shumard oak, white ash, green ash, cypress, hackberry, cow oak, persimmon, sycamore, yellow-poplar.	Cottonwood, Nuttall oak, sweetgum, sycamore, green ash, cow oak, cypress.	Slight	Moderate	Slight.
Loblolly pine, cherrybark oak, Shumard oak, water oak, sweetgum.	Loblolly pine, cherrybark oak, Shumard oak, sweetgum.	Slight	Moderate	Moderate.
All slopes: loblolly pine, shortleaf pine. Middle and lower slopes: cherrybark oak, sweetgum, Shumard oak, water oak, black oak, southern red oak.	All slopes: loblolly pine, shortleaf pine. Middle and lower slopes: cherrybark oak, Shumard oak, sweetgum. Coves and slope bascs: black oak, yellow-poplar.	Slight to moderate.	Moderate	Moderate.
Green ash, cottonwood, sweetgum, sycamore, hackberry, cherrybark oak, cow oak.	Green ash, cottonwood, sweetgum, sycamore.	Slight	Moderate	Moderate.
Green ash, cypress, cottonwood, Nuttall oak, overcup oak, water oak, willow oak, sweetgum.	Green ash, cypress, cottonwood, Nuttall oak, sweetgum.	Slight	Moderate	Moderate.

TABLE 7.—*Woodland groups and*

Woodland group, map symbols, and description of soils	Potential productivity		
	Selected species	Estimated range in site index [1]	Average yearly growth [2]
			Bd. ft./acre Doyle rule
Group 13 (FcA, FcB, Fn, Fo). Level or nearly level, poorly drained or somewhat poorly drained silty soils. Runoff is slow to very slow, permeability is moderately slow to slow, and the available water capacity is moderate.	Cherrybark oak	85 to 94	240 to 335
	Sweetgum	80 to 89	215 to 300
Group 14 (Gu, LgC3, LgD3). Gently sloping to steep, well drained or moderately well drained, severely eroded silty soils and gullied land on uplands. Runoff is medium to rapid, permeability is moderately slow, and the available water capacity is moderate.	Loblolly pine	55 to 64	40 to 120
	Shortleaf pine	50 to 59	45 to 120
Group 15 (Hc, La). Level or nearly level, poorly drained or somewhat poorly drained silty soils. Runoff is slow, permeability is slow to very slow, and the available water capacity is very low to moderate.	(3)	(3)	(3)

[1] Site index ratings are adapted from soil-site studies performed by the U.S. Soil Conservation Service and the U.S. Forest Service (*14, 15, 16, 17*).

[2] Yields shown for pine are for fully stocked, unmanaged, even-aged stands to age 60 (*21*); yields shown for cottonwoods are for well-stocked, even-aged, managed stands to age 30; those shown for other hardwoods are for well-stocked, even-aged, managed stands to age 60. Yields shown for hardwoods are adapted from published material on southern hardwoods (*18*), upland central hardwoods (*20*), and tree-growth data from soil-site studies performed by the Soil Conservation Service.

This soil is poorly suited to plants that provide food for wildlife, and it is not suitable as sites for impoundments.

Wildlife group 4

This group consists of level to undulating, poorly drained to excessively drained soils of the Askew, Bosket, Bruno, Collins, Falaya, Forestdale, Fountain, Iuka, and Ochlockonee series. These soils are on broad bottom lands. They occupy about 32 percent of the county.

The crops commonly grown are cotton, soybeans, corn, small grain, and grain sorghum. Bermudagrass, ryegrass, and tall fescue are suitable grasses, and lespedeza, crimson clover, and vetch are suitable legumes.

The soils of this group are well suited to plants that provide choice food for bobwhites, doves, squirrels, and rabbits. They generally are not suitable as sites for farm ponds or impoundments.

Wildlife group 5

In this group are level or nearly level, poorly drained, clayey soils of the Alligator and Sharkey series. These soils are in broad slack-water areas on bottom lands. They make up about 24 percent of the county.

The crops commonly grown are cotton, soybeans, small grain, rice, and grain sorghum. White clover and vetch are suitable legumes, and bermudagrass, ryegrass, and tall fescue are suitable grasses.

The soils of this group are well suited to plants that provide choice food for squirrels, deer, doves, and ducks. They provide suitable sites for impoundments for fish and ducks.

Wildlife group 6

Soils of the Foley complex make up this group, which occupies about 8 percent of the county. These are poorly drained or somewhat poorly drained loamy soils on broad terraces. They are adjacent to soils that formed in thick deposits of silt. Their subsoil is high in sodium content.

The crops commonly grown are cotton, soybeans, small grain, and grain sorghum. Bermudagrass and tall fescue are suitable grasses, and lespedeza and vetch are suitable legumes.

Because of their high sodium content, these soils are somewhat restricted as sites for growing plants suitable for wildlife food, and they are unfavorable sites for impoundments. If impoundments are constructed, the excavated material should not be spread over the surface.

Formation, Classification, and Morphology of Soils

This section discusses the major factors of soil formation, the classification of the soils in Greene County by higher categories, the nomenclature for the classes, and the morphology of the soils.

Formation of Soils

Soil is formed by the interaction of five factors of soil formation: climate, vegetation and other living organisms, parent material, relief, and time. Each factor acts on the soil and modifies the effect of the other four (*19*).

Climate and vegetation are the active factors of soil genesis. They act on parent material and gradually change it to a natural body that has genetically related horizons. Relief, mainly by its influence on runoff and temperature, modifies the effect of climate and vegetation. Climate, vege-

factors in woodland management—Continued

Preferred species—		Management problems		
In existing stands	For planting	Erosion hazard	Equipment limitation	Seedling mortality
Cherrybark oak, Nuttall oak, water oak, sweetgum, willow oak, hackberry, sycamore, green ash.	Nuttall oak, green ash, sweetgum, sycamore.	Slight	Moderate	Moderate.
Loblolly pine, shortleaf pine	Loblolly pine, shortleaf pine	Severe	Severe	Severe.
[3]	[3]	[3]	[3]	[3].

[3] Not suitable for production of commercial timber.

tation, parent material, and relief interact through periods of time.

The interaction of the factors is complex and is more complex for some soils than for others. In places, for example, the environment has changed, and the characteristics of a new soil have been superimposed on that of an older one.

Climate

The climate in Greene County is one of warm summers, mild winters, and generally abundant rainfall. It probably has not changed much during the period the soils have been forming.

The warm, moist climate promotes soil development. The abundant rainfall makes large amounts of water available for removing dissolved or suspended material downward. The remains of plants decompose rapidly, and the organic acids thus produced hasten the development of clay minerals and the removal of carbonates. The soil is frozen for only short periods, and soil development can continue almost the year round. Because the climate throughout the county is uniform, it does not account for significant differences among the soils.

Living organisms

Among the living organisms important in the formation of soils are bacteria, fungi, insects, and more highly developed plants and animals. These organisms help to increase the content of organic matter, to increase the supply of nitrogen, to diminish or increase the supply of other plant nutrients, and to change the structure and porosity of the soils.

The native vegetation in Greene County has had more influence than animals on soil development. Differences in native vegetation are associated mainly with differences in drainage, and only the major differences are reflected to any extent in soil characteristics.

Pine and hardwood trees originally covered most of the uplands. The most common trees were red oak, white oak, post oak, willow oak, water oak, black walnut, magnolia, yellow-poplar, hickory, sweetgum, blackgum, and ash. Shortleaf pine was common on Crowley Ridge.

On the bottom lands the cover was a dense forest broken by occasional canebrakes. Heavy stands of baldcypress grew in the swampy areas. Hardwoods grew on most of the better drained soils and on many of the wet ones. On the slight ridges the trees were chiefly hickory, pecan, white oak, post oak, red oak, blackgum, and elm. In swales and other low places that were wet but not swampy, the principal trees were tupelo-gum, sweetgum, elm, green ash, hackberry, cottonwood, overcup oak, and willow oak. Canebrakes covered many of the broader flats between the swamps and the sloughs and bayous.

Through the development of agriculture, man is influencing soil formation. By clearing the forest, cultivating the soils, introducing new kinds of plants, controlling floods, and improving drainage, he is drastically changing the complex community of organisms that affect soil genesis. Only a few results of these activities can be seen now; some probably will not be evident for many centuries.

Parent material

The parent material of the soils of Greene County consists mainly of unconsolidated alluvial and eolian sediments deposited during two or perhaps three ages of geologic time.

East of Crowley Ridge, the soils formed in material deposited in the flood plain of an ancestor stream of the present Ohio River. This material was reworked, at least in part, by the Mississippi River and its tributary, the St. Francis River. Before the Mississippi River appropriated the lower Ohio River flood plain, the St. Francis River served as an overflow channel from the Mississippi to the Ohio River (*5*), and its swift flowing water probably brought much of the sandy surface sediment to the east-

TABLE 8.—*Suitability of plants as food for wildlife*

[Figure 1 indicates that the plant is *choice* (attractive and nutritious) for the given kind of wildlife; figure 2, *fair* (eaten only when *choice* foods are not available); figure 3, *unimportant* (eaten only in small amounts)]

Plants	Bobwhites	Deer	Doves	Ducks	Geese	Rabbits	Squirrels	Nongame birds[1]		
								Fruit eaters	Grain and seed eaters	Nut and acorn eaters
Alfalfa	3	1	3	3	1	1	3	3	3	3
Ash, green and white	2	2	3	2	3	3	2	3	2	2
Barnyardgrass	3	3	1	1	1	3	3	3	2	3
Blackberry	1	2	3	3	3	3	1	1	3	1
Blackgum	2	2	3	3	3	3	2	1	3	3
Bristlegrass	1	2	1	2	2	3	3	3	1	3
Browntop millet	1	2	1	1	2	1	3	3	1	3
Cherry, black	1	2	3	3	3	3	1	1	3	3
Clovers, crimson and white	1	1	3	3	1	1	3	3	3	3
Corn	1	1	1	1	1	1	1	3	1	1
Cowpeas	1	1	2	3	3	1	3	3	3	3
Croton, woolly	1	3	1	3	3	3	3	3	2	3
Dogwood	1	1	3	3	3	3	2	1	3	2
Duckweed	3	3	3	1	3	3	3	3	3	3
Elm	3	2	3	3	3	3	1	3	2	3
Farkleberry (winter huckleberry)	2	2	3	3	3	3	2	2	3	3
Fescue	3	2	3	3	2	2	3	3	3	3
Grapes	3	1	3	3	3	3	2	1	3	3
Greenbrier	3	1	3	3	3	1	3	2	3	3
Hackberry	2	1	3	3	3	3	2	1	3	3
Hickory	3	2	3	3	3	3	1	3	3	1
Honeysuckle	3	1	3	3	3	3	3	1	3	3
Huckleberry and blueberry	2	2	3	3	3	3	2	1	3	3
Japanese millet	1	3	1	1	3	1	3	3	1	3
Johnsongrass	2	2	2	3	3	3	3	3	1	3
Lespedeza, annual	1	1	2	3	3	2	3	3	2	3
Lespedeza, bush	1	1	3	3	3	2	2	3	3	3
Maple	3	1	3	3	3	3	2	3	3	3
Milkpea	1	2	3	3	3	1	3	3	3	3
Mulberry	1	2	3	3	3	3	1	1	3	3
Naiads (Najas)	3	3	3	1	1	3	3	3	3	3
Oak	1	1	3	1	3	3	1	3	3	1
Oats	1	1	2	2	1	1	1	3	1	3
Panicgrass	1	2	1	1	2	2	3	3	1	3
Partridgepea	1	2	3	3	3	3	3	3	3	3
Paspalum	1	2	1	2	2	3	3	3	1	3
Pecan	1	2	3	3	3	3	1	3	3	1
Persimmon	3	2	3	3	3	3	2	2	3	3
Pine	1	3	1	3	3	3	1	3	3	1
Pokeberry	2	1	1	3	3	3	3	1	3	3
Pondweed (Potamogeton)	3	3	3	1	3	3	3	3	3	3
Ragweed, common	1	2	1	3	3	3	3	3	1	3
Rice	2	3	2	1	1	3	1	3	1	1
Ryegrass	3	1	3	1	1	1	3	3	3	3
Sassafras	2	1	3	3	3	3	2	1	3	3
Smartweed	3	3	3	1	2	3	3	3	2	3
Sorghum	1	1	1	1	1	1	1	3	1	1
Soybeans	2	1	2	1	2	2	3	3	3	3
Sumac	2	1	3	3	3	2	3	1	3	3
Sweetgum	1	1	1	3	3	3	1	3	1	1
Sunflower	1	2	1	3	3	3	2	3	3	1
Tickclover (beggarweed)	1	1	3	3	3	3	3	3	3	3
Vetch, hairy	1	1	2	3	3	2	3	3	3	3
Walnut	3	3	3	3	3	3	1	3	3	1
Wheat	1	1	1	1	1	1	1	3	1	1

[1] Fruit eaters include bluebirds, catbirds, mockingbirds, and robins. Grain and seed eaters include blackbirds, cardinals, and sparrows. Nut and acorn eaters include bluejays, chickadees, grackles, and woodpeckers.

TABLE 9.—*Suitability of plants to soils in wildlife groups*

[Figure 1 indicates that the plant is suited to the soils in the given group; figure 2, that it is marginally suited; figure 3, that it is poorly suited or not suited]

Plant	Wildlife group					
	1	2	3	4	5	6
Alfalfa	3	3	3	2	2	3
Ash, green and white	3	3	3	1	3	2
Barnyardgrass	1	3	3	2	2	1
Blackberry	1	1	3	1	3	3
Blackgum	2	2	3	1	2	2
Bristlegrass	1	1	3	1	3	3
Browntop millet	1	1	3	1	2	3
Cherry, black	1	1	3	2	2	1
Clovers, crimson and white	3	3	3	1	1	1
Corn	1	1	3	1	1	1
Cowpeas	1	1	3	1	3	3
Croton, woolly	1	1	3	1	3	3
Dogwood	1	1	3	3	3	3
Duckweed	3	3	3	2	1	1
Elm	3	3	3	2	2	1
Farkleberry (winter huckleberry)	1	2	3	2	3	3
Fescue	2	3	3	1	1	1
Grapes	1	1	3	1	1	1
Greenbrier	1	1	3	1	1	1
Hackberry	3	3	3	3	1	2
Hickory	1	1	3	1	1	1
Honeysuckle	1	1	3	2	3	3
Huckleberry and blueberry	1	1	3	1	3	3
Japanese millet	1	2	3	1	1	1
Johnsongrass	1	1	3	1	2	2
Lespedeza, annual	1	1	3	1	1	1
Lespedeza, bush	2	2	3	1	3	3
Maple	2	2	3	1	1	1
Milkpea	3	2	3	1	3	2
Mulberry	2	1	3	2	3	3
Naiads (Najas)	1	1	3	1	1	1
Oak	1	1	3	2	1	1
Oats	1	2	3	1	1	1
Panicgrass	1	2	3	1	2	2
Partridgepea	2	2	3	1	3	3
Paspalum	3	3	3	1	1	1
Pecan	1	1	3	1	1	1
Persimmon	1	1	3	1	3	3
Pine	1	1	3	3	3	3
Pokeberry	1	1	3	1	1	1
Pondweed (Potamogeton)	1	1	3	1	1	1
Ragweed, common	1	1	3	1	3	2
Rice	1	3	3	2	1	2
Ryegrass	1	1	3	1	1	1
Sassafras	1	1	3	2	3	3
Smartweed	1	1	3	1	1	1
Sorghum	1	1	3	1	2	2
Soybeans	1	1	3	1	1	1
Sumac	1	1	3	2	3	3
Sweetgum	2	2	3	1	1	1
Sunflower	1	1	3	1	3	3
Tickclover (beggarweed)	1	1	3	1	3	1
Vetch, hairy	1	1	3	1	1	1
Walnut	3	1	3	1	3	3
Wheat	1	1	3	1	1	1

ern part of the county. These sediments are the materials in which Bruno and Bosket soils formed. Young sediments along the western edge of this area were brought down from the loessal uplands by minor streams and are the materials in which Falaya and Collins soils formed.

The alluvium along the lower Mississippi River basin consists of material that washed downstream from areas extending from Montana to Pennsylvania (*25*). The soil material in the basin also includes loess and glacial drift. Consequently, it is a mixture of minerals, most of which are but slightly weathered.

Generally, as a stream overflows its banks and spreads out over the flood plain, the coarser sediments are dropped first. Then, as the floodwaters continue to spread and to move more slowly, the finer sediments, such as silt, are deposited. When the flood has passed and water is left standing in shallow depressions and swamps, the finest sediments, or clays, settle. This pattern, however, is uncommon in the lower Mississippi valley because, over the centuries, the river channel has meandered back and forth across the flood plain, sometimes cutting out older sediments, and sometimes depositing reworked sediments in a new pattern. For example, the A horizon of the Forestdale soil is silt loam, the upper part of the B horizon is silty clay, and the lower part has a sandy or loamy texture. These horizons represent a natural levee buried by a thin layer of slack-water sediment, which in turn is buried beneath mixed, medium-textured sediments.

Since the major rivers meandered eastward away from Greene County many years ago, the deposition of new general alluvium has been rare, except on the narrow flood plain of the St. Francis River along the eastern boundary of the county. As a result, the sediments that formed the natural levees have been in place long enough to undergo significant leaching of cations and some translocation of clay. The original sediments were stratified, and most were probably neutral to calcareous as are the raw sediments along the present course of the Mississippi River. The soils on natural levees, such as the Bosket, Askew, and Forestdale, are medium acid to strongly acid and have subsurface horizons in which clay has accumulated. In slack-water areas, Sharkey soils are slightly acid to neutral, though they are calcareous in the lower horizons. This suggests that the original sediments were calcareous but have undergone some leaching. Alligator soils, which formed in the same kind of sediments, have been in place for a much longer time. Thus, they are more intensively leached and are strongly acid. Fountain soils, of intermediate age, are neutral. Much of the calcium has been leached from their upper horizons, leaving magnesium and other bases, which are more resistant to leaching.

The parent material of most soils on the uplands consists wholly or partly of loessal material. This wind-transported material commonly is 5 feet to more than 20 feet thick over sandy or sandy and gravelly material. Many soils formed entirely in the loessal mantle (*22*). Brandon and Freeland soils formed where the mantle of loess is thin. Saffell soils formed where the sandy and gravelly material is exposed. The gravelly and sandy material is a remnant of a former broad outwash plain that filled the Mississippi River valley.

During Pleistocene time, the Mississippi River had its flood plain west of Crowley Ridge, and the Ohio River flowed on the east side (*5*). Finally the Mississippi River abandoned the vast complex of channels, flood plains, and terraces west of the ridge in favor of the Ohio River channel east of the ridge. The broad, abandoned back swamps, where most of the Alligator soils formed, were subsequently drained by smaller, more localized rivers and bayous that occupied former braided channels of the

Mississippi River. One of these smaller streams is the Cache River, which forms part of the western boundary of Greene County. Such streams were inadequate to maintain an active flood plain over the entire area formerly overflowed by the Mississippi River. Those parts of the old alluvial plain above overflow were mantled with loess during the same general period that the loess on Crowley Ridge was deposited. On some of the older terraces the loess is as thick as that on the ridge. For example, Freeland silt loam on Jones Ridge and Brandon silt loam on Crowley Ridge formed in loess of about the same thickness. Calloway soils formed in thick silty deposits on Jones Ridge and along Crowley Ridge. Falaya and Collins soils formed in silty alluvium along the larger creeks draining westward from Crowley Ridge. In the vicinity of Walcott, Iuka and Ochlockonee soils formed in sandy sediments washed from exposures of the substratum on Crowley Ridge.

The loess in Greene County is similar, in most respects, to that throughout the lower Mississippi valley. This is to be expected because the primary source of loess was the flood plain of the Mississippi River (*22*). The loess is unstratified, and the particles are of rather uniform size. Most of them are silt size. Less than 8 percent, and commonly as little as 2 to 4 percent, of the material is sand. The mineral fragments are only moderately weathered and are angular. Their interlocking accounts for the characteristic near-vertical bluffs in deep cuts. The soils that formed in loess are dominantly acid, though the content of bases is moderately high. An exception is Lafe soils, which are alkaline and are high in content of sodium and magnesium.

Relief

Relief, or the shape of the landscape, affects soil formation through its influence on drainage, erosion, plant cover, and soil temperature.

Nearly level flood plains make up about 50 percent of Greene County. Crowley Ridge, which traverses the central part in a northeast-southwest direction, makes up about 35 percent. Skirting its foot slopes on both sides are loessal plains that merge with the flood plains.

On the flood plains, the relief is characterized by flat areas or depressions and successions of gently undulating swales and low ridges. Local differences in elevation are mostly less than 8 feet, and slopes commonly are less than 3 percent, although there are some steeper slopes along streambanks. The highest elevation ranges from 265 feet above sea level on the sandy natural levees to about 235 feet in the southeastern part of the county. The area east of Crowley Ridge is drained by the St. Francis, and that west of the ridge by the Cache River. The Cache River is about 15 feet higher in elevation than the St. Francis.

Crowley Ridge is about 7 miles wide at the north county line and gradually widens to about 12 miles at the south county line. It is made up of narrow ridges and steep, strongly dissected side slopes. The loessal plains skirting the foot slopes are mainly level and poorly drained, but they are broken in places by low, gently sloping ridges. The elevation ranges from about 525 feet on the ridge, to about 270 feet on the foot slopes, to about 250 feet where the loessal plains merge with the flood plains. Small streams flow east and west from the drainage divide on Crowley Ridge.

Time

The length of time required for the formation of a soil depends largely on other factors of soil formation. Usually, less time is required if the climate is warm and humid, the parent material coarse textured, and the vegetation luxuriant.

It seems probable that the sediments that form most of the land surface in Greene County were deposited during and after the advances of the Wisconsin glaciers, the last of which was retreating from the North Central States about 11,000 years ago (*9*, *10*). On uplands, fresh sediments are deposited at frequent intervals on some soils, such as the Iuka, Ochlockonee, Falaya, and Collins. On bottom lands, floods frequently deposit new material on Sharkey and Alligator soils.

The soils on the smoother, more nearly level parts of uplands are more mature and have thicker, more strongly developed horizons than those on side slopes. On side slopes, geologic erosion has more nearly kept pace with soil development, and the soils have thinner, less well expressed but evident horizons.

Collins and Ochlockonee soils, derived from local alluvium, are examples of young soils that have little horizon development. Except for the darkening of the surface layer by accumulated organic matter, these soils retain most of the characteristics of the parent material. Bruno soils, because of the high percentage of sand in the parent material, probably will never have well-expressed horizons. Bosket soils, which developed in finer textured material than Bruno soils, are intermediate in development. They have an acid B horizon high in accumulation of clay, and they bear little resemblance to the original parent material.

Classification of Soils

Soils are classified so that we may more easily remember their significant characteristics, assemble knowledge about them, see their relationships, and understand their behavior and their response to the whole environment. First through classification and then through the use of soil maps, we can apply our knowledge to specific fields and other tracts of land.

The classification of soils into series and lower categories is discussed in the section "How This Survey Was Made." Two systems of classifying soils above the series level have been used in the United States in recent years. The older system was adopted in 1938 (*19*) and revised later (*12*). The system currently used by the National Cooperative Soil Survey was adopted in 1965 and is under continual study. Readers interested in the development of this system should refer to the latest literature available (*11*, *13*).

The current system of classification has six categories. Beginning with the most inclusive, these categories are the order, the suborder, the great group, the subgroup, the family, and the series. The criteria for classification are soil properties that are measurable or observable, but the properties are selected so that soils of similar genesis are grouped together. Placement of some soil series in the current system of classification, particularly in families, may change as more precise information becomes available.

Table 10 shows the classification of the soil series of Greene County according to both systems. The categories

TABLE 10.—*Classification of soil series in Greene County into higher categories*

Series	Current classification system			Great soil group 1938 classification
	Family	Subgroup	Order	
Alligator	Very fine, montmorillonitic, acid, thermic.	Vertic Haplaquepts	Inceptisols	Low-Humic Gley soils.
Askew	Fine-silty, mixed, thermic	Aquic Hapludalfs	Alfisols	Gray-Brown Podzolic soils.
Bosket	Fine-loamy, mixed, thermic	Mollic Hapludalfs	Alfisols	Gray-Brown Podzolic soils.
Brandon	Fine-loamy, mixed, thermic	Typic Paleudults	Ultisols	Red-Yellow Podzolic soils.
Bruno	Sandy, mixed, nonacid, thermic	Typic Udifluvents	Entisols	Regosols.
Calhoun	Fine-silty, mixed, thermic	Typic Glossaqualfs	Alfisols	Planosols.
Calloway	Fine-silty, mixed, thermic	Aqueptic Fragiudalfs	Alfisols	Planosols.
Collins	Coarse-silty, mixed, acid, thermic	Aquic Udifluvents	Entisols	Alluvial soils.
Crowley	Fine, montmorillonitic, thermic	Typic Albaqualfs	Alfisols	Planosols.
Falaya	Coarse-silty, mixed, acid, thermic	Aeric Fluventic Haplaquepts	Inceptisols	Alluvial soils.
Foley	Fine-silty, mixed, thermic	Albic Glossic Natraqualfs	Alfisols	Solodized-Solonetz soils.
Forestdale	Fine, montmorillonitic, thermic	Typic Ochraqualfs	Alfisols	Low-Humic Gley soils.
Fountain	Fine-silty, mixed, thermic	Typic Glossaqualfs	Alfisols	Low-Humic Gley soils.
Freeland	Fine-silty, mixed, thermic	Typic Fragiudalfs	Alfisols	Planosols.
Hillemann	Fine-silty, mixed, thermic	Aeric Ochraqualfs	Alfisols	Planosols.
Iuka	Coarse-loamy, siliceous, acid, thermic	Aquic Udifluvents	Entisols	Alluvial soils.
Lafe	Fine-silty, mixed, thermic	Glossic Natraqualfs	Alfisols	Solodized-Solonetz soils.
Loring	Fine-silty, mixed, thermic	Typic Fragiudalfs	Alfisols	Gray-Brown Podzolic soils.
Memphis	Fine-silty, mixed, thermic	Typic Hapludalfs	Alfisols	Gray-Brown Podzolic soils.
Ochlockonee	Coarse-loamy, siliceous, acid, thermic	Typic Udifluvents	Entisols	Alluvial soils.
Saffell	Loamy skeletal, siliceous, thermic	Typic Hapludults	Ultisols	Red-Yellow Podzolic soils.
Sharkey	Very fine, montmorillonitic, nonacid, thermic.	Vertic Haplaquepts	Inceptisols	Grumusols.

of the current system are defined briefly in the following paragraphs.

ORDER.—Soils are grouped into orders according to properties that seem to have resulted from the same processes acting to about the same degree on the parent material. Ten soil orders are recognized in the current system. Of these, the Entisols, Inceptisols, Alfisols, and Ultisols are represented in Greene County.

Entisols are recent soils, in which there has been little, if any, horizon development. This order includes many, but not all, soils previously classified as Alluvial soils or Regosols.

Inceptisols occur mostly on young, but not recent, land surfaces. In Greene County, this order includes soils that were formerly classified as Alluvial soils, Grumusols, or Low-Humic Gley soils.

Alfisols have a clay-enriched B horizon that is high in base saturation. In Greene County, this order includes most soils previously classified as Planosols, Low-Humic Gley soils, Solodized-Solonetz soils, and Gray-Brown Podzolic soils.

Ultisols are old soils in which the base saturation is less than 35 percent or decreases to less than 35 percent with depth. The parent material has been strongly weathered. In Greene County, this order includes soils previously classified as Red-Yellow Podzolic soils.

SUBORDER.—Each order is divided into suborders, primarily on the basis of soil characteristics that indicate genetic similarity. The suborders have a narrower climatic range than the order. The criteria for suborders reflect either the presence or absence of waterlogging or soil differences resulting from the climate or vegetation.

GREAT GROUP.—Each suborder is divided into great groups on the basis of uniformity in the kind and sequence of genetic horizons.

SUBGROUP.—Each great group is divided into subgroups, one representing the central (typic) concept of the group, the others, called intergrades, made up of soils that have mostly properties of one group but also one or more properties of another great group.

FAMILIES.—Families are established within subgroups primarily on the basis of properties important to plant growth. Some of these properties are texture, mineralogy, reaction, soil temperature, permeability, consistence, and thickness of horizons.

SERIES.—The series is a narrower category within the family. All the soils of a given series formed from a particular kind of parent material and have genetic horizons that, except for the texture of the surface layer, are similar in differentiating characteristics and in arrangement in the soil profile. Among the differentiating characteristics are color, structure, reaction, consistence, and mineralogical and chemical composition.

A detailed description of each soil series in the county is given in the section "Descriptions of the Soils."

Nomenclature

The nomenclature for the classes in each of the five highest categories is for the most part connotative. The formative elements are taken chiefly from the classical languages. Many of the roots are familiar and thus help in the visualization of the soil. For example, the Brandon soils are classified as Typic Paleudults. The formative elements indicate that Brandon soils are typical (typ), have thick B horizons (pale), are in humid areas (ud), and are old soils with low base saturation (ult).

Names are distinctive for the classes in each category, and indicate the category to which a given class belongs. Moreover, the names are so designed that each subgroup,

by its name, readily identifies the great group, suborder, and order with which it is associated. For example, the name Typic Paleudults indicates a class in the subgroup. From the name, one can identify the great group (Paleudult), the suborder (Udult), and the order (Ultisols).

Morphology of Soils

Most soil profiles contain three major horizons—A, B, and C. The A horizon is the surface layer. It can be the A1 horizon, which is the horizon of maximum content of organic matter, or the A2 horizon, which is the horizon of maximum leaching of dissolved or suspended materials.

The B horizon is immediately beneath the A horizon. It contains the maximum accumulation of dissolved or suspended materials, such as iron or clay (*24*). The B horizon generally is firmer than the horizons immediately above and below, and it commonly has blocky structure. In some young soils, a B horizon has not developed.

Beneath the B horizon is the C horizon. The C horizon generally has been little affected by soil-forming processes, but in most soils it has been modified by weathering.

The soils of Greene County have horizons that developed through one or more of the following processes: (1) the accumulation of organic matter, (2) the leaching of calcium carbonates and bases, (3) the reduction and transfer of iron, and (4) the formation and translocation of silicate clay minerals. In most soils, more than one of these processes have been active in the development of horizons.

Accumulation of organic matter in the upper profile to form an A1 horizon has contributed to horizon development in the soils of Greene County. The soils range from medium to low in organic-matter content.

The leaching of carbonates and bases has occurred in all of the soils but is much further advanced in some soils than in others. Generally, the leaching of bases precedes the translocation of silicate clay minerals, although the processes are not simple and direct but are subject to complex interrelationship. For example, in Lafe, Foley, and Hillemann soils, the content of salts is high, although there is considerable evidence of translocated clay in the form of clay films on ped surfaces and in pores in their B horizon. The reason for excess salts in these soils is not clearly understood. In poorly drained soils, leaching is slow because water movement is slow. Most of the soils of Greene County are moderately to strongly leached and are medium acid to strongly acid.

The reduction and transfer of iron, a process called gleying, is evident in the somewhat poorly drained and poorly drained soils of Greene County. The gray color in the soil indicates the reduction of iron or the loss of iron. In some subsoil horizons there are accumulations of segregated iron in the form of concretions and mottles. Calhoun and Forestdale are examples of gleyed soils.

The translocation, or downward movement, of silicate clay minerals has contributed to horizon development in most of the soils of Greene County. In many places the eluviated A2 horizon has been wholly or partly destroyed by plowing, but in soils where an A2 horizon is present, it is lower in clay content and is lighter in color than the B horizon, and it has weaker structure. Generally clay has accumulated in the B horizon in the form of clay films in pores and on ped surfaces.

Leaching of bases and the translocation of silicate clays are among the most important processes in horizon differentiation in the soils of Greene County.

Physical and Chemical Analysis

Tables 11 and 12 give data obtained by laboratory analysis of samples of selected soils.

Particle-size distribution was determined by the hydrometer method (*4*). Forty-gram samples were dispersed with a 10-percent solution of sodium hexametaphosphate, adjusted to pH 8.3 with sodium carbonate. The sedimentation cylinders were kept in a constant-temperature bath during hydrometer readings for the determination of clay. Sand was determined by sieving (the sieves were mechanically shaken for at least 15 minutes) and is expressed on a percent-by-weight basis. The percentage of silt was determined by the difference. (The textures given in the section "Descriptions of the Soils" are field estimates and do not necessarily agree with the laboratory texture shown in the last column of table 11.)

Chemical analysis was made by methods described in commonly available references (*3*, *7*, *8*). Samples were prepared by air-drying, grinding, and screening through a standard 20-mesh sieve.

Potassium, calcium, magnesium, and sodium were extracted from 3-gram soil samples with normal ammonium acetate buffered at pH 7.0 with ammonium hydroxide (*3*). Calcium, potassium, and sodium were then determined in the extract with a flame emission spectrophotometer (Beckman DU Spectrophotometer). Magnesium in the extract was determined by colorimetric comparison with standards. The content of extractable cations is expressed in terms of milliequivalents per 100 grams of oven-dry (110° C.) soil.

In extracting hydrogen (exchange acidity), 10 grams of soil were reacted with a buffer solution of barium chloride. The leachate was then titrated with hydrochloric acid (*8*).

The total of extractable cations of calcium, hydrogen, magnesium, potassium, and sodium is an approximation of the cation exchange capacity of the soil. If soluble salts are in excess of those held on the exchange, as in Foley, Hillemann, and Lafe soils, the summation of extractable cations as determined above will exceed the true cation exchange capacity of the soil.

The base saturation percentage is obtained by dividing the total of the extractable bases by the total of the extractable cations and multiplying by 100. The values for magnesium saturation and sodium saturation are similarly calculated.

The percentage of organic matter in the soil samples was estimated by determination of organic carbon, using the potassium dichromate-sulfuric acid digestion method. The organic carbon content is converted to percent organic matter by using this equation: percent carbon $\times 1.724$ = organic matter (*7*).

Soil reaction (pH) is determined on mixtures of soil and water at a ratio of 1:1, using a Beckman Model H2 pH meter.

Soil phosphorus was extracted with a Bray No. 1 solution (0.03N NH_4F in 0.025N HCL) and determined col-

TABLE 11.—*Mechanical analysis of selected soils*

[Analyzed by Soils Laboratory, University of Arkansas, Fayetteville, Ark. Lack of data indicates that determination was not made or that the amount determined was too low for meaningful interpretation]

Soil and sample number	Horizon	Depth	Particle-size distribution								Textural class
			Very coarse sand (2–1 mm.)	Coarse sand (1–0.5 mm.)	Medium sand (0.5–0.25 mm.)	Fine sand (0.25–0.1 mm.)	Very fine sand (0.1–0.05 mm.)	Total sand	Silt (0.05–0.002 mm.)	Clay (less than 0.002 mm.)	
		Inches	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	
Alligator silty clay loam.											
3182	Ap1	0–4	1.0	1.4	0.7	1.0	1.1	5.2	69.5	25.3	Silt loam.
3183	Ap2	4–11	1.5	1.7	.2	.5	.6	4.5	45.0	50.5	Silty clay.
3184	C1	11–32	.1	.4	.1	.3	.4	1.3	26.2	72.5	Clay.
3185	C2	32–47	.1	.2	.1	.3	.5	1.2	37.0	61.8	Clay.
Alligator silty clay loam, alkali subsoil.											
3348	Ap	0–6	.1	.3	.3	3.4	7.1	11.2	56.8	32.0	Silty clay loam.
3349	C1g	6–10	.1	.2	.2	3.3	7.2	11.0	57.0	32.0	Silty clay loam.
3350	C2g	10–32	----	.1	.1	2.1	5.0	7.3	39.8	52.9	Clay.
3351	C3g	32–54	.1	.1	.1	2.3	6.2	8.8	43.6	47.6	Silty clay
Bruno loamy sand.											
3243	Ap	0–8	----	1.8	39.3	29.8	9.5	80.4	16.0	3.6	Loamy fine sand.
3244	C1	8–21	----	1.9	34.8	34.6	11.8	83.1	13.3	3.6	Loamy fine sand.
3245	C2	21–52	----	1.8	36.5	36.0	11.3	85.6	9.9	3.5	Loamy fine sand.
Collins silt loam.											
3178	Ap	0–6	.2	.1	.1	.2	.6	1.2	87.0	11.8	Silt.
3179	A1	6–15	.1	.1	.1	.2	.3	.8	83.8	15.4	Silt loam.
3180	C1	15–25	----	.3	.4	.6	.6	1.9	78.3	19.8	Silt loam.
3181	C2g	25–72	----	.1	.1	.3	1.5	2.0	93.0	5.0	Silt.
Falaya silt loam.											
3337	Ap	0–6	----	----	----	----	----	1.1	84.3	14.6	Silt loam.
3338	B1	6–16	----	----	----	----	----	1.6	78.1	20.3	Silt loam.
3339	B21	16–26	----	----	----	----	----	1.6	80.6	17.8	Silt loam.
3340	B22g	26–33	----	----	----	----	----	1.4	84.0	14.6	Silt loam.
3341	B23g	33–72	----	----	----	----	----	2.0	85.4	12.6	Silt loam.
Freeland silt loam.											
3352	Ap	0–7	0	.1	.3	4.7	11.7	16.8	73.1	10.1	Silt loam.
3353	B21t	7–16	----	.1	.1	2.9	7.1	10.2	66.7	23.1	Silt loam.
3354	B22t	16–24	----	0	.1	3.0	8.8	11.9	62.4	25.7	Silt loam.
3355	Bx1	24–34	----	0	.1	4.4	11.3	15.8	62.5	21.7	Silt loam.
3356	Bx2	34–43	----	.1	.1	5.1	13.6	18.9	60.1	21.0	Silt loam.
3357	IIB3	43–52	----	----	.1	18.9	5.3	24.3	62.3	13.4	Silt loam.
Hillemann silt loam.											
3483	Ap	0–5	----	.8	.7	.6	2.0	4.1	85.9	10.0	Silt.
3484	A2	5–13	----	1.9	1.8	3.0	1.1	7.8	75.1	17.1	Silt loam.
3485	B21t	13–22	----	.6	1.2	2.0	2.1	5.9	56.1	38.0	Silty clay loam.
3486	B22t	22–47	----	1.3	1.7	2.8	1.5	7.3	66.0	26.7	Silt loam or silty clay loam.
3487	B3	47–60	----	2.1	3.8	6.7	2.6	15.2	64.3	20.5	Silt loam.
Iuka loam.											
3610	Ap	0–8	----	2.1	3.3	11.7	6.5	23.6	71.3	5.1	Silt loam.
3611	B1	8–28	----	2.5	9.3	21.1	6.6	39.5	51.1	9.4	Silt loam.
3612	B2	28–40	----	.5	2.3	12.0	6.2	21.0	71.6	7.4	Silt loam.
3613	C1g	40–50	----	2.0	3.2	6.2	5.9	17.3	69.7	13.0	Silt loam.
Lafe silt loam.											
3255	Ap	0–4	----	----	----	----	----	1.0	91.9	7.1	Silt.
3256	A2g	4–8	----	----	----	----	----	.9	92.0	7.1	Silt.
3257	B21tg	8–12	----	----	----	----	----	.9	80.3	18.8	Silt loam.
3258	B22tg	12–31	----	----	----	----	----	.3	76.0	23.7	Silt loam.
3259	B23t	31–50	----	----	----	----	----	.5	68.8	30.7	Silty clay loam.

TABLE 11.—*Mechanical analysis of selected soils*—Continued

Soil and sample number	Horizon	Depth	Particle-size distribution								Textural class
			Very coarse sand (2–1 mm.)	Coarse sand (1–0.5 mm.)	Medium sand (0.5–0.25 mm.)	Fine sand (0.25–0.1 mm.)	Very fine sand (0.1–0.05 mm.)	Total sand	Silt (0.05–0.002 mm.)	Clay (less than 0.002 mm.)	
		Inches	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	
Loring silt loam.											
3364	Ap	0–5						2. 2	84. 6	13. 2	Silt loam.
3365	B1	5–11						1. 0	80. 7	18. 3	Silt loam.
3366	B21t	11–29						. 5	69. 5	30. 0	Silty clay loam.
3367	B22t	29–33						1. 4	69. 6	29. 0	Silty clay loam.
3368	Bx	33–45						1. 2	71. 0	27. 8	Silty clay loam.
3369	B3	45–60						1. 2	70. 4	28. 4	Silty clay loam.
Memphis silt loam.											
3572	Ap	0–7						2. 6	88. 6	8. 8	Silt.
3573	B1	7–12						. 7	67. 6	31. 7	Silty clay loam.
3574	B21t	12–32						1. 0	62. 0	37. 0	Silty clay loam.
3575	B22t	32–46						1. 6	69. 9	28. 5	Silty clay loam.
3576	C	46–84						1. 5	68. 3	30. 2	Silty clay loam.
Ochlockonee loam.											
3606	Ap	0–8		1. 1	5. 7	22. 8	9. 5	39. 1	57. 1	3. 8	Silt loam.
3607	C1	8–23		1. 3	6. 5	24. 6	10. 1	42. 5	48. 9	8. 6	Loam.
3608	C2	23–36		. 6	3. 3	16. 4	10. 1	30. 4	61. 2	8. 4	Silt loam.
3609	C3	36–45		. 7	. 9	. 7	1. 3	3. 6	84. 6	11. 8	Silt or silt loam.
Sharkey clay.											
3603	Ap	0–4		. 4	. 8	3. 3	2. 5	7. 0	32. 0	61. 0	Clay.
3604	C1g	4–26		. 1	. 3	1. 1	2. 0	3. 5	26. 3	70. 2	Clay.
3605	C2g	26–72		. 2	. 3	1. 1	1. 4	3. 0	22. 2	74. 8	Clay.

TABLE 12.—*Chemical analysis of selected soils*

[Analyzed by Soils Laboratory, University of Arkansas, Fayetteville, Ark. Lack of data indicates that determination was not made; 0 indicates the amount determined was too low for meaningful interpretation]

Soil	Sample number	Horizon	Depth	Extractable cations (milliequivalents per 100 grams of soil)						Base saturation	Reaction	Organic matter	Available phosphorus	Magnesium saturation	Sodium saturation
				Potassium	Calcium	Magnesium	Sodium	Hydrogen	Total						
			Inches							*Percent*	*pH*	*Percent*	*Pounds per acre*	*Percent*	*Percent*
Alligator silty clay loam.	3182	Ap1	0–4	0. 4	2. 5	2. 6	0. 5	11. 6	17. 6	33. 9	5. 2	1. 7	29	14. 8	2. 6
	3183	Ap2	4–11	. 3	1. 8	3. 7	. 9	21. 0	27. 7	23. 9	5. 4	. 6	50	13. 2	3. 1
	3184	C1	11–32	. 6	3. 0	8. 3	2. 5	26. 8	41. 2	34. 9	4. 6	. 6	109	20. 3	6. 0
	3185	C2	32–47	. 5	3. 1	10. 4	3. 3	16. 2	33. 5	51. 8	4. 5	. 6	21	30. 9	9. 7
Alligator silty clay loam, alkali subsoil	3348	Ap	0–6	. 2	2. 3	2. 0	. 4	10. 8	15. 7	31. 3	4. 6	1. 2	56	13. 1	2. 4
	3349	C1g	6–10	. 2	1. 8	2. 6	. 6	10. 7	15. 9	32. 5	4. 8	. 3	50	16. 5	4. 1
	3350	C2g	10–32	. 3	3. 4	8. 3	3. 1	9. 6	24. 7	61. 3	4. 6	. 2	50	32. 2	13. 3
	3351	C3g	32–54	. 4	4. 9	10. 4	5. 4	1. 0	22. 1	95. 6	7. 1	0	56	48. 0	24. 9
Bruno loamy sand.	3243	Ap	0–8	. 1	. 5	. 3	. 1	4. 7	5. 7	17. 6	5. 2	. 2	1		
	3244	C1	8–21	. 1	1. 3	. 2	. 2	2. 4	4. 2	41. 9	6. 3	0	33		
	3245	C2	21–52	. 1	1. 8	. 2	. 2	2. 0	4. 3	52. 1	6. 4	. 1	63		
Collins silt loam.	3178	Ap	0–6	. 1	1. 8	. 6	. 3	4. 9	7. 7	36. 2	5. 2	. 5	10		
	3179	A1	6–15	. 1	2. 8	. 7	. 3	5. 6	9. 5	40. 4	5. 4	. 4	18		
	3180	C1	15–25	. 1	1. 0	. 6	. 3	9. 4	11. 4	17. 5	5. 1	. 3	28		
	3181	C2g	25–72	0	. 2	. 2	. 2	4. 1	4. 7	13. 3	4. 9	0	44		

TABLE 12.—*Chemical analysis of selected soils*—Continued

Soil	Sample number	Horizon	Depth	Extractable cations (milliequivalents per 100 grams of soil)						Base saturation	Reaction	Organic matter	Available phosphorus	Magnesium saturation	Sodium saturation
				Potassium	Calcium	Magnesium	Sodium	Hydrogen	Total						
			Inches							*Percent*	*pH*	*Percent*	*Pounds per acre*	*Percent*	*Percent*
Falaya silt loam.	3337	Ap	0–6	.2	3.4	.8	.2	6.1	10.7	42.7	5.1	.9	12		
	3338	B1	6–16	.1	1.3	.8	.3	7.9	10.4	23.7	4.6	.1	18		
	3339	B21	16–26	.1	.8	.7	.3	8.6	10.5	17.7	4.8	.1	23		
	3340	B22g	26–33	.1	.4	.6	.3	8.8	10.2	13.4	4.9	0	10		
	3341	B23g	33–72	.2	.3	.5	.4	6.0	7.4	18.1	4.9	0	6		
Freeland silt loam.	3352	Ap	0–7	.2	3.3	.5	.2	1.1	5.3	78.3	7.3	.2	8		
	3353	B21t	7–16	.2	1.6	1.6	.2	7.1	10.7	33.1	4.7	.3	44		
	3354	B22t	16–24	.2	1.1	2.2	.4	11.8	15.7	24.8	5.0	.1	34		
	3355	Bx1	24–34	.2	1.1	2.1	.4	7.9	11.7	32.3	5.2	.1	25		
	3356	Bx2	34–43	.2	1.3	2.6	.5	7.4	12.0	38.3	5.1	0	12		
	3357	IIB3	43–52	.1	1.0	1.6	.4	4.8	7.9	39.1	5.3	.1	23		
Hillemann silt loam.	3483	Ap	0–5	.1	1.3	.9	.2	3.8	6.3	39.3	5.4	.9	13	14.9	2.5
	3484	A2	5–13	.1	.8	.3	.5	5.4	7.1	23.2	5.2	.3	8	4.4	6.4
	3485	B21t	13–22	.2	.6	1.6	2.7	14.9	20.0	25.2	5.7	.5	6	7.8	13.3
	3486	B22t	22–47	.2	1.4	2.6	4.0	5.3	13.5	60.8	6.0	.3	8	19.2	29.7
	3487	B3	47–60	.1	1.6	2.1	3.3	1.8	8.9	79.5	7.0	.1	11	23.3	36.5
Iuka loam.	3610	Ap	0–8	.7	2.9	.3	.1	6.0	10.0	40.3	7.0	1.4	160+		
	3611	B1	8–28	.1	.7	.2	.1	5.3	6.4	17.0	4.8	.2	21		
	3612	B2	28–40	.3	.7	.3	.2	3.1	4.6	31.6	4.9	.3	13		
	3613	C1g	40–50	.1	1.6	2.1	.5	4.8	9.1	44.3	5.4	.1	7		
Lafe silt loam.	3255	Ap	0–4	.2	1.0	1.5	.3	6.5	9.5	30.8	4.8	1.2	8	15.5	2.8
	3256	A2g	4–8	.1	.6	.8	.3	4.9	6.7	27.9	5.2	.7	0	12.4	4.9
	3257	B21tg	8–12	.1	.4	3.7	.8	4.4	9.4	52.9	5.9	.2	0	38.8	8.9
	3258	B22tg	12–31	.2	.4	7.3	7.2	1.4	16.5	91.7	7.5	0	14	44.3	43.3
	3259	B23t	31–50	.3	.4	7.3	7.1	1.3	16.4	92.4	8.0	.1	58	44.3	43.4
Loring silt loam.	3364	Ap	0–5	.5	2.8	1.0	.1	10.1	14.5	30.2	5.6	3.1	27		
	3365	B1	5–11	.2	.4	.5	.1	7.6	8.8	14.9	4.8	3.2	15		
	3366	B21t	11–29	.2	.4	3.1	.2	10.4	14.3	27.4	5.1	0	0		
	3367	B22t	29–33	.2	1.0	1.0	.5	8.9	11.6	23.5	5.3	.2	11		
	3368	Bx	33–45	.2	.9	2.9	.2	7.7	11.9	35.7	5.3	0	4		
	3369	B3	45–60	.2	1.7	2.9	.5	4.4	9.7	54.7	5.0	0	29		
Memphis silt loam.	3572	Ap	0–7	.2	1.9	1.0	.2	3.6	6.9	48.8	6.4	1.7	5		
	3573	B1	7–12	.4	1.8	3.7	.1	6.9	12.9	46.0	5.4	.3	9		
	3574	B21t	12–32	.3	1.0	4.2	.2	9.1	14.8	38.2	5.2	.2	10		
	3575	B22t	32–46	.2	1.0	3.6	.2	7.4	12.4	40.0	5.7	.1	5		
	3576	C	46–84	.2	1.4	4.2	.2	7.1	13.1	45.6	5.8	.1	7		
Ochlockonee loam.	3606	Ap	0–8	.1	.5	1.1	.1	3.8	5.6	15.9	4.9	.9	20		
	3607	C1	8–23	0	.5	.1	.1	6.5	7.2	9.8	5.2	.3	12		
	3608	C2	23–36	.1	.8	.7	.5	3.4	5.5	36.9	5.2	0	4		
	3609	C3	36–45	.1	1.7	1.6	.3	4.8	8.5	43.2	6.0	0	8		
Sharkey clay.	3603	Ap	0–4	.6	15.6	4.7	.3	10.7	31.9	66.3	5.8	2.2	90		
	3604	C1g	4–26	.4	19.0	7.3	.5	8.8	36.0	75.7	6.0	1.9	36		
	3605	C2g	26–72	.4	21.8	7.3	.8	3.7	34.0	89.1	7.0	.6	36		

orimetrically with a Bausch and Lomb Spectronic 20 colorimeter (*7*).

Representative profile descriptions of the soils listed in tables 11 and 12 are given in the section "Descriptions of the Soils."

General Nature of the County

This section discusses the climate of the county; describes briefly the physiography, drainage, and natural resources; and gives some important farming statistics.

Climate [6]

Greene County has hot, humid summers; mild winters; and generally abundant rainfall. Table 13 shows data on temperature and precipitation from the U.S. Weather Bureau Station at Paragould.

The county is on the borderline between subtropical and continental weather forces. It lies within reach of polar and even arctic air masses, but periods of intense cold are

[6] R. O. REINHOLD, meteorologist, Weather Bureau Station, Little Rock, Ark., helped prepare this subsection.

TABLE 13.—*Temperature and precipitation*

[All data from Paragould]

Month	Temperature				Precipitation		
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with—		Average total	One year in 10 will have—	
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—
	°F	°F	°F	°F	In	In	In
January	48	28	69	5	4 45	1 29	8 06
February	53	32	72	13	4 12	. 98	8. 35
March	61	39	79	22	5. 10	1 49	8. 51
April	72	49	86	31	4 15	2 10	6. 53
May	81	57	93	41	4 11	1 46	6. 92
June	89	65	100	52	3. 08	. 67	6 45
July	92	68	101	57	3 90	1 21	7 01
August	91	66	101	54	3 72	86	6 57
September	85	58	98	41	3 29	1 16	7 78
October	75	48	89	29	2 73	78	5 31
November	61	37	78	18	3. 95	1 54	7 22
December	50	31	70	12	4. 33	1 92	7 16
Year	71	48	----------	----------	46. 93	37. 73	55 31

of short duration. Snowfall is negligible, and sleet occurs only occasionally. With the retreat of cool Canadian air, air masses from the Gulf of Mexico bring in warm, moist air. From late in May until early in September, the sun's heat is intense. Thus, summers are hot and humid.

Precipitation is generally adequate for the needs of a farming area. It averages about 47 inches a year. Almost 60 percent of the annual precipitation falls during the winter and spring. Rainfall decreases by nearly 50 percent during September and October. Otherwise, it is fairly well distributed throughout the year. Summer rainfall, associated with thunderheads, is erratic and unpredictable.

Thunderstorms occur on an average of 55 days each year, but they generally are not accompanied by damaging winds. Thirty-five tornadoes were observed in the area from 1916 through 1961.

Short periods of drought affecting all parts of the county are frequent. In most years, at least one drought lasting 15 days or more can be expected during the growing season. In about 1 year in 5, a drought of 1 or 2 months duration can be expected in the period from April through October. Such droughts damage but generally do not kill crops. Periods of severe or extreme drought have occurred five times since 1931. These droughts commonly lasted 2 or 3 months, but a drought that began in the summer of 1953 lasted for 18 consecutive months. Severe or extreme droughts cause widespread damage, ranging from sharply reduced yields to total crop loss.

In summer, evaporation rates range up to a third of an inch per day. Despite the generally adequate rainfall, a large amount of soil moisture is lost through evaporation during rain-free periods in the hot summer months.

Records from the U.S. Weather Bureau Station at Paragould show that the average length of the growing season is 209 days. The average date of the last freezing temperature (32° F.) is April 4 and the average date of the first in fall is October 30. The latest date that a temperature of 32° has been recorded is April 23 (in 1959), and the earliest is September 30 (in 1949). The average date of the last 28° reading in spring is March 31, and that of the first in fall is November 4. The latest date that a temperature of 28° has been recorded is April 17 (in 1951), and the earliest is October 16 (in 1952).

Physiography and Drainage

There are three main physiographic areas in Greene County. Crowley Ridge extends in a northeast-southwest direction across the central part of the county and merges on each side with loessal plains, which, in turn, are bordered by bottom lands. Crowley Ridge rises abruptly from the plains, and its boundaries are distinct. The boundary between the eastern loessal plain and the bottom lands of the St. Francis River is marked by an escarpment that ranges from 3 to 20 feet in height. The boundary between the western loessal plain and the bottom lands of the Cache River is gradual and indistinct.

Crowley Ridge ranges from about 7 miles to about 12 miles in width and is about 525 feet above sea level at its highest elevation. Over most of the ridge, erosion is severe or very severe. The soils formed mainly in a thick mantle of loess over a stratified layer of sand and gravel, which ranges from a few feet to more than 80 feet in thickness. They are well drained or moderately well drained and are rolling to hilly. Farming on the ridge is diversified with the emphasis on livestock, principally cattle. Much of the acreage is wooded. The streams within the ridge are fast flowing. Thus, the soils on their flood plains consist of mixed silty and sandy material and are somewhat poorly drained to moderately well drained. Because the streams seldom overflow during the cropping season, most of these soils are used for crops. On the

ridge is a large outcrop of gray quartzite, which is apparently the upthrow of a fault. This is the only known outcrop of hard rock east of the Ozark uplift in Arkansas.

On the loessal plains, the soils formed mainly in a thick layer of silt over sandy or clayey sediments. In places the silty layer is thin, and the sandy or clayey sediments are within 1 to 4 feet of the surface. The soils are level to gently sloping and are poorly drained to moderately well drained. They are used principally for rice, soybeans, cotton, and forage crops. Only small areas remain wooded.

On bottom lands, the soils formed mainly in mixed and stratified loamy sediments, but there are some thick beds of clay in slack-water areas, and there are low ridges of loamy sands. For the most part, the soils are level to gently undulating and are poorly drained to excessively drained. They are the most fertile soils in the county. Except for odd areas and some strips along sloughs and shallow intermittent streams, the soils are used principally for cotton, soybeans, rice, small grain, corn, and forage crops.

The streams in Greene County flow generally in a southerly direction. The area west of the crest of Crowley Ridge is drained to the Cache River, and the area east of the crest is drained to the St. Francis River.

Water

Greene County is well supplied with streams and rivers. The St. Francis and Cache Rivers flow continuously, but most of the smaller streams are dry part of the year. The principal smaller streams are Hurricane Creek, Mayo Ditch, Eight Mile Ditch, Locust Creek Ditch, Big Slough Ditch, and Main Lateral.

An abundant supply of water can be obtained from wells throughout the county. Most wells yield water of good quality, but there are some that yield water high in salts. On bottom lands, wells that are between 35 and 40 feet in depth produce an adequate supply of water for home use. Wells used to supply water for irrigation must be between 100 to 200 feet in depth. A 10-inch well can be expected to produce about 2,000 gallons of water per minute. On Crowley Ridge, an adequate supply of water for home use can be obtained from wells that are between 80 and 200 feet in depth. Because there are few flowing streams or springs on the ridge, ponds commonly are the best source of water for livestock. Most of the farms have suitable sites for the construction of ponds. There have been 948 ponds constructed in the county and 2 reservoirs.

Farming

The early economy of Greene County was based mainly on cotton farming and timber production. As the land was cleared for farming, timber production declined. Later, rice became an important crop. Because of the acreage allotments placed on cotton in 1933 and on rice in 1950, soybeans and small grain have increased in importance.

According to the 1964 Census of Agriculture, the land area of the county is 370,560 acres, of which about 74 percent is in farms. The rest is largely woodland.

Between 1959 and 1964, the number of farms in the county decreased from 2,080 to 1,703, but the size of the farms increased. For example, in 1959 farms averaged about 129 acres in size, whereas in 1964 they averaged about 160 acres. From 1959 to 1964, the number of farms of 180 acres or more increased from 409 to 512. In 1964, there were 68 farms 500 acres or more in size.

The farms generally are small enough for the family to do most of the work, with only occasional outside help. The larger farms are operated by tenants or by day laborers under the supervision of the owner. Tenants pay a fixed rent or a percentage of the crop for the use of the land. Of the farm operators in 1964, 732 were full owners, 511 part owners, and 460 tenants.

In Greene County, the amount of equipment and the facilities available on the farms vary. The larger farms are highly mechanized, and most other farms are mechanized to some extent. Most farms use chemicals for weed control.

Cotton, soybeans, corn, and small grain are grown on most of the farms in Greene County. Rice is also grown on many of the farms west of Crowley Ridge and on some farms east of the ridge. Some farms on Crowley Ridge have fairly large herds of beef cattle. According to the U.S. Census of Agriculture, the acreage of principal crops and of pasture in 1959 and 1964 were as follows:

Crop	*Acres in 1959*	*Acres in 1964*
Corn for all purposes	19 754	7, 385
Rice	4, 034	5, 149
Soybeans	76, 934	114, 221
Cotton	36, 878	34, 155
Hay	4, 141	4, 579
Pasture		
Cropland used only for pasture	22, 107	16, 459
Other (not cropland and not woodland)	7, 763	11, 425

From 1959 to 1964, the number of cattle and calves in the county increased from 13,477 to 15,519, but the number of milk cows decreased from 3,078 to 1,504. In this same period, the number of hogs and pigs decreased from 19,290 to 8,293.

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Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster, such as a clod, crumb, block, or prism

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams

Available water capacity. The capacity of a soil to hold water in a form available to plants Amount of moisture held in soil between field capacity, or about one-third atmosphere of tension, and the wilting coefficient, or about 15 atmospheres of tension.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt

Claypan. A compact, slowly permeable soil horizon that contains more clay than the horizon above and below it A claypan is commonly hard when dry and plastic or stiff when wet

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers Terms commonly used to describe consistence are—

Loose—Noncoherent, will not hold together in a mass.

Friable—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump

Firm—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump, will form a wire when rolled between thumb and forefinger.

Sticky—When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material

Hard—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure

Cemented—Hard and brittle, little affected by moistening

Eluviation. The movement of material from one place to another within the soil either in true solution or colloidal suspension. Soil horizons that have lost material through eluviation are said to be eluvial; those that have received material are illuvial

Erosion. The wearing away of the land surface by wind, running water, and other geological agents

Fertility, soil. The quality of a soil that enables it to provide compounds, in adequate amounts and in proper balance, for the growth of specified plants, when other growth factors, such as light, moisture, temperature, and the physical condition (or tilth) of the soil, are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has been allowed to drain away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic matter and clay but is rich in silt or very fine sand. The layer is seemingly cemented when dry, has a hard or very hard consistence, and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.

Green manure (agronomy). A crop grown for the purpose of being turned under in an early stage of maturity or soon after maturity for soil improvement

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the major horizons

O horizon The layer of organic matter on the surface of a mineral soil This layer consists of decaying plant residues

A horizon The mineral horizon at the surface or just below an O horizon This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of humus The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides)

B horizon The mineral horizon below an A horizon The B horizon is in part a layer of change from the overlying A to the underlying C horizon The B horizon also has distinctive characteristics caused by (1) accumulation of clay, sesquioxides, humus, or some combination of these; (2) prismatic or blocky structure, (3) redder or stronger colors than the A horizon or (4) some combination of these Combined A and B horizons are usually called the solum, or true soil If a soil lacks a B horizon, the A horizon alone is the solum

C horizon The weathered rock material immediately beneath the solum In most soils this material is presumed to be like that from which the overlying horizons were formed If the material is known to be different from that in the solum, a Roman numeral precedes the letter C

R layer Consolidated rock beneath the soil. The rock usually underlies a C horizon but may be immediately beneath an A or B horizon

Internal soil drainage. The downward movement of water through the soil profile The rate of movement is determined by the texture, structure, and other characteristics of the soil profile and underlying layers, and by the height of the water table, either permanent or perched Relative terms for expressing internal drainage are *none, very slow, slow, medium, rapid,* and *very rapid.*

Leached soil. A soil from which most of the soluble materials have been removed from the entire profile or have been removed from one part of the profile and have accumulated in another part.

Loess. A fine-grained eolian deposit consisting dominantly of silt-sized particles

Mottled. Irregularly marked with spots of different colors that vary in number and size Mottling in soils usually indicates poor aeration and lack of drainage Descriptive terms are as follows Abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent* The size measurements are these: *fine,* less than 5 millimeters (about 0 2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0 2 to 0 6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0 6 inch) in diameter along the greatest dimension

Parent material (soil). The horizon of weathered rock or partly weathered soil material from which soil has formed: horizon C in the soil profile

Ped. An individual natural soil aggregate, such as a crumb, a prism, or a block, in contrast to a clod.

Percolation. The downward movement of water through the soil

Permeability. The quality of a soil horizon that enables water or air to move through it Terms used to describe permeability are as follows: *very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

pH value. A numerical means for designating acidity and alkalinity in soils A pH value of 7 0 indicates precise neutrality, a higher value, alkalinity; and a lower value, acidity.

Plowsole. A compacted layer formed in the soil immediately below the plowed layer

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction an alkaline soil is one that is alkaline in reaction In words, the degrees of acidity or alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4 5	Neutral	6 6 to 7 3
Very strongly acid	4 5 to 5 0	Mildly alkaline	7 4 to 7 8
Strongly acid	5 1 to 5 5	Moderately alkaline	7 9 to 8 4
Medium acid	5 6 to 6 0	Strongly alkaline	8 5 to 9 0
Slightly acid	6 1 to 6 5	Very strongly alkaline	9 1 and higher

Runoff (hydrology). The part of the precipitation upon a drainage area that is discharged from the area in stream channels The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water

Sand. As a soil separate, individual rock or mineral fragments ranging from 0 05 to 2 0 millimeters in diameter Most sand grains consist of quartz, but sand may be of any mineral composition As a textural class, soil that is 85 percent or more sand and not more than 10 percent clay

Shrink-swell potential (engineering). Amount that a soil will expand when wet or contract when dry. Indicates kinds of clay in soil.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0 002 millimeter) to the lower limit of very fine sand (0 05 millimeter) As a textural class, soil that is 80 percent or more silt and less than 12 percent clay

Site class (forestry). A grouping of site indexes, by species, for convenience in management Groupings may express relative productivity or actual height attained by trees at a specified age

Slope classes. As used in this survey

Level	0 to 1 percent
Gently undulating	0 to 3 percent
Nearly level	1 to 3 percent
Gently sloping	3 to 8 percent
Moderately sloping	8 to 12 percent
Moderately steep	12 to 20 percent
Steep	20 to 40 percent

Soil separates. Mineral particles, less than 2 millimeters in equivalent diameter and ranging between specified size limits The names and sizes of separates recognized in the United States are as follows: *Very coarse sand* (2.0 millimeters to 1 0 millimeter); *coarse sand* (1 0 to 0 5 millimeter) *medium sand* (0 5 to 0 25 millimeter), *fine sand* (0 25 to 0 10 millimeter); *very fine sand* (0 10 to 0 05 millimeter); *silt* (0 05 to 0 002 millimeter); and *clay* (less than 0 002 millimeter) The separates recognized by the International Society of Soil Science are as follows I (2 0 millimeters to 0 2 millimeter), II (0 2 to 0 02 millimeter), III (0 02 to 0 002 millimeter); IV (less than 0 002 millimeter)

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active The solum in mature soil includes the A and B horizons Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the profile below plow depth.

Substratum. Any layer beneath the solum, or true soil

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surplus runoff so that it may soak into the soil or flow slowly to a prepared outlet without harm. Terraces in fields are generally built so they can be farmed. Terraces intended mainly for drainage have a deep channel that is maintained in permanent sod.

GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and that of the soil series to which the mapping unit belongs. Other information is given in tables as follows:

Acreage and extent, table 1, page 7.
Predicted yields, table 2, page 32.
Engineering uses of the soils, tables 3, 4, and 5, pages 34 through 41.
Nonfarm uses of the soils, table 6, page 42.
Woodland groups, table 7, page 48.

Map symbol	Mapping unit	Described on page	Capability unit		Woodland group	Wildlife group	
			Symbol	Page	Number	Number	Page
AgA	Alligator silty clay loam, 0 to 1 percent slopes	7	IIIw-4	30	12	5	52
AlA	Alligator silty clay loam, 0 to 1 percent slopes, alkali subsoil	8	IIIw-3	30	12	5	52
AmB	Alligator silt loam, 1 to 3 percent slopes	8	IIIw-4	30	12	5	52
AsA	Askew fine sandy loam, 0 to 1 percent slopes	8	I-1	27	1	4	52
AsB	Askew fine sandy loam, gently undulating	8	IIw-3	29	1	4	52
BoA	Bosket fine sandy loam, 0 to 1 percent slopes	9	I-1	27	1	4	52
BoB	Bosket fine sandy loam, gently undulating	9	IIe-1	27	1	4	52
BoC	Bosket fine sandy loam, 3 to 8 percent slopes	9	IIIe-1	29	1	4	52
BrB2	Brandon silt loam, 1 to 3 percent slopes, eroded	10	IIe-2	28	10	2	49
BrC2	Brandon silt loam, 3 to 8 percent slopes, eroded	10	IIIe-2	29	10	2	49
BrD2	Brandon silt loam, 8 to 12 percent slopes, eroded	10	IVe-1	31	10	2	49
BsD	Brandon soils, 8 to 12 percent slopes	11	IVe-1	31	10	2	49
BsE	Brandon soils, 12 to 20 percent slopes	11	VIe-1	31	10	2	49
BsE2	Brandon soils, 12 to 20 percent slopes, eroded	11	VIe-1	31	10	2	49
BsF	Brandon soils, 20 to 40 percent slopes	11	VIIe-1	31	10	2	49
Bu	Bruno loamy sand	12	IIIs-1	30	3	4	52
Ca	Calhoun silt loam	13	IIIw-5	30	9	1	49
ClA	Calloway silt loam, 0 to 1 percent slopes	13	IIw-1	28	5	1	49
ClB	Calloway silt loam, 1 to 3 percent slopes	13	IIw-1	28	5	1	49
Co	Collins silt loam	14	I-1	27	2	4	52
Fa	Falaya silt loam	15	IIw-3	29	8	4	52
FcA	Foley complex, 0 to 1 percent slopes	16	IIIw-1	29	13	6	52
FcB	Foley complex, 1 to 3 percent slopes	16	IIIw-1	29	13	6	52
Fe	Forestdale silt loam	17	IIIw-2	30	11	4	52
Fn	Fountain silt loam	17	IIIw-2	30	13	4	52
Fo	Fountain clay loam	18	IIIw-2	30	13	4	52
FrB2	Freeland silt loam, 1 to 3 percent slopes, eroded	18	IIe-2	28	5	2	49
FrC2	Freeland silt loam, 3 to 8 percent slopes, eroded	19	IIIe-2	29	5	2	49
Gu	Gullied land	19	VIIe-1	31	14	2	49
Hc	Hillemann and Crowley silt loams	20	IIw-2	29	15	1	49
Iu	Iuka loam	20	I-1	27	2	4	52
La	Lafe silt loam	21	VIs-1	31	15	3	49
LgB2	Loring silt loam, 1 to 3 percent slopes, eroded	22	IIe-2	28	5	2	49
LgC2	Loring silt loam, 3 to 8 percent slopes, eroded	22	IIIe-2	29	6	2	49
LgC3	Loring silt loam, 3 to 8 percent slopes, severely eroded	23	IIIe-2	29	14	2	49
LgD2	Loring silt loam, 8 to 12 percent slopes, eroded	23	IVe-1	31	6	2	49
LgD3	Loring silt loam, 8 to 12 percent slopes, severely eroded	23	IVe-1	31	14	2	49
LmE	Loring and Memphis silt loams, 12 to 20 percent slopes	23	VIe-2	31	7	2	49
MeB2	Memphis silt loam, 1 to 3 percent slopes, eroded	24	IIe-2	28	5	2	49
MeC2	Memphis silt loam, 3 to 8 percent slopes, eroded	25	IIIe-2	29	5	2	49
Oc	Ochlockonee loam	25	I-1	27	2	4	52
SaE2	Saffell gravelly fine sandy loam, 12 to 20 percent slopes, eroded	26	VIe-1	31	10	2	49
Sc	Sharkey clay	26	IIIw-4	30	4	5	52

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