Series 1961, No. 13

Issued February 1965

SOIL SURVEY

Covington County, Mississippi

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
in cooperation with
MISSISSIPPI STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STATION

HOW TO USE THE SOIL SURVEY REPORT

THIS SOIL SURVEY of Covington County, Miss., will serve several groups of readers. It will help farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; aid foresters in managing woodland; and add to our knowledge of soil science.

Locating Soils

Use the index to map sheets at the back of this report to locate areas on the large map. The index is a small map of the county on which numbered rectangles have been drawn to show where each sheet of the large map is located. When the correct sheet of the large map has been found, it will be seen that boundaries of the soils are outlined, and that there is a symbol for each kind of soil. All areas marked with the same symbol are the same kind of soil, wherever they occur on the map. The symbol is inside the area if there is enough room; otherwise, it is outside the area and a pointer shows where the symbol belongs.

Finding Information

This report contains sections that will interest different groups of readers, as well as some sections that may be of interest to all.

Farmers and those who work with farmers can learn about the soils in the section "Description of Soils" and then turn to the section "Use of the Soils for Farm Crops and Pasture." In this way, they first identify the soils on their farm and then learn how these soils can be managed and what yields can be expected. The "Guide to Mapping Units" at the back of the report will simplify use of the map and report. This guide lists each soil and land type mapped in the county, and the page where each is described. It also lists, for each soil and land type, the capability unit, woodland suitability group, and woodland range site, and the pages where each of these is described.

Foresters and others interested in woodland can refer to the section "Use of the Soils for Growing Wood Crops." In that section the soils in the county are grouped according to their suitability for trees, and factors affecting the management of woodland are explained.

Persons who raise livestock will be interested in the section "Use of the Soils for Woodland Range." In that section the soils are grouped according to their suitability, use, and management for woodland grazing.

Persons interested in wildlife will find information about the kinds of wildlife in the county in the section "Use of the Soils for Wildlife and Fish." They will also find information about the ability of the soils to support the various species of wildlife.

Engineers and builders will want to refer to the section "Use of Soils for Engineering." Tables in that section show characteristics of the soils that affect engineering.

Persons interested in science will find information about how the soils were formed and how they were classified in the section "Formation, Morphology, and Classification of Soils."

Students, teachers, and other users will find information about soils and their management in various parts of the report, depending on their particular interest.

Newcomers in Covington County will be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "Additional Facts About the County."

Cover picture: Pasture of bahiagrass used to graze Black Angus cattle.

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SOIL SURVEY OF COVINGTON COUNTY, MISSISSIPPI

FIELD SURVEY BY WALTER E. KENNAN AND ROBERT E. FULGHAM, MISSISSIPPI AGRICULTURAL EXPERIMENT STATION, AND KENNETH H. BYERS, MORRIS E. SHAFFER, AND LEWIS R. WATTS, SOIL CONSERVATION SERVICE

REPORT BY WALTER E. KENNAN, MISSISSIPPI AGRICULTURAL EXPERIMENT STATION, AND WILLIAM A. COLE, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE MISSISSIPPI STATE UNIVERSITY AGRICULTURAL EXPERIMENT STATION

COVINGTON COUNTY, in the southeastern part of Mississippi (fig. 1), has a total area of 416 square miles, or 266,240 acres. Collins is the county seat. The county has a humid, warm-temperate climate that is hot in summer and generally mild in winter. The growing season is long, and moisture is generally adequate for crops. There may be short, dry periods, however, that reduce yields of crops.

Agriculture is the principal enterprise. In 1959, 41,203 acres was in field crops, 43,138 acres was in pasture, and 88,832 acres was in timber. In that year about 62 percent of the income from the sale of farm products was derived from the sale of livestock and livestock products. Cattle, mainly beef cattle, are raised more extensively than other kinds of livestock. Corn and cotton are grown on a large acreage, and oats and hay crops are also grown extensively.

In 1938 the farmers in the county organized the Covington County Soil Conservation District. The district, through its directors, arranges for farmers to receive technical help from the Soil Conservation Service in planning good use and conservation of the soils on their farms. This soil survey is part of that technical help. Fieldwork on this survey was completed in 1961. Unless otherwise stated, all statements in this report refer to conditions at that time.

General Soil Map

As one travels over a county, it is fairly easy to see differences in the landscape. Some of these differences are in the shape, steepness, and length of slopes, in the course, depth, and speed of streams, in the width of the valleys, in the kinds of wild plants, and in the kinds of agriculture. Soils differ along with the other parts of the environment, but the differences in soil patterns are less easily noticed than some of the other more obvious differences.

Over a given landscape soils occur in general, definite patterns that are sometimes called soil associations. The pattern in a soil association is not uniform, but the same soils are present in somewhat the same arrangement. By drawing lines around the different patterns (associations) of soils on a small-scale map, a general soil map is

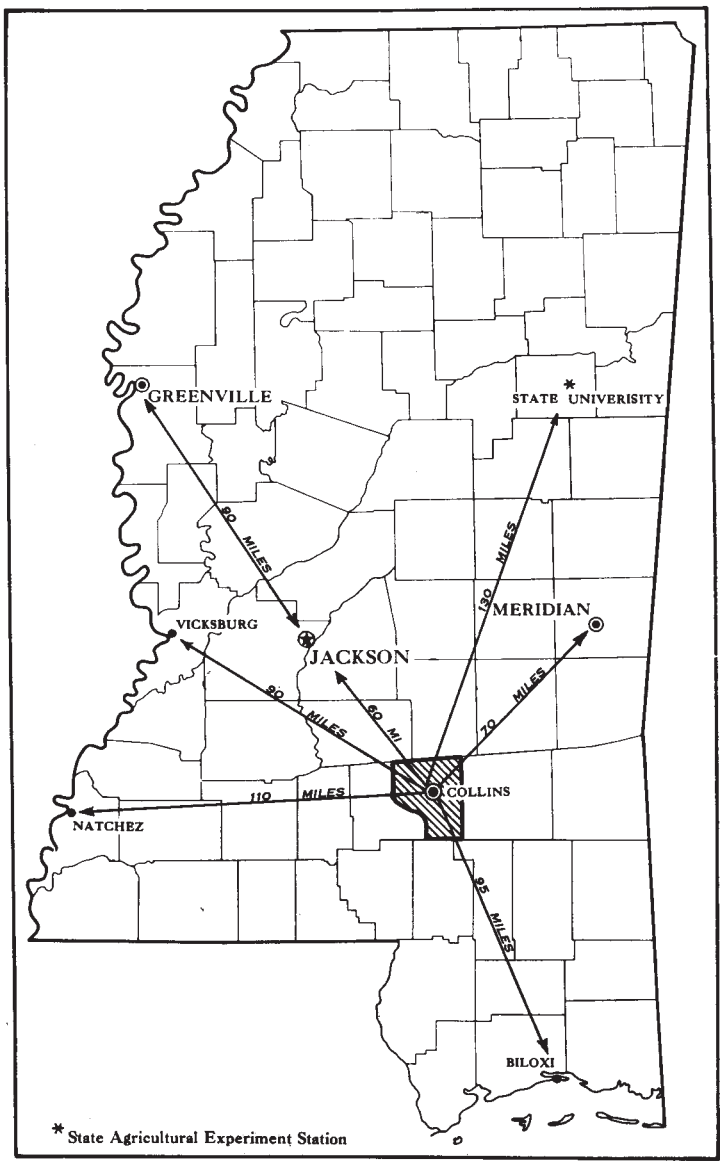

Figure 1.—**Location of Covington County in Mississippi.**

produced. Such a map does not show accurately the kinds of soils on a single farm or small tract. Nevertheless, it is useful for general planning and to people who are interested in the soils in a general way.

In Covington County three soil associations are recognized. They are shown on the colored map in the back of this report. Each association is named for the major soil series in it, but soils of other series may be present.

1. Ruston-Ora-Savannah Association

Well drained and moderately well drained soils of rolling and gently sloping uplands

This association is on rolling and gently sloping Coastal Plain uplands that have been cut by many permanent and intermittent streams. The ridgetops are broad and gently sloping. The side slopes are generally steep, mostly more than 12 percent. Narrow bottom lands that are flooded frequently border the streams. The main areas of this association are broad and are separated by the valley of Okatoma Creek.

The Ruston soils are on gently sloping ridgetops and on steep side slopes. They have a surface layer of dark grayish-brown to yellowish-brown fine sandy loam and a subsoil of strong-brown to red sandy loam to sandy clay loam. The Ora and Savannah soils are gently sloping. They have a grayish-brown, loamy surface layer and a subsoil of loam to clay loam. A fragipan is about 18 to 22 inches below the surface. The subsoil of the Ora soils is yellowish red, and that of the Savannah soils is yellowish brown.

Minor soils in this association are the moderately well drained Boswell and the poorly drained Susquehanna soils. These soils have a subsoil of plastic clay.

The broad ridges in this association are cultivated or used as pasture. The steep side slopes are in forest. Most of the farms are small, and most are well managed and are operated by the owner. The farms within the association are mainly of the general type, but there are several dairy farms and farms where the raising of beef cattle is a main enterprise. On the general farms, cotton, corn, small grains, and hay are grown. On many farms, in addition to these crops, sweetpotatoes, cucumbers, watermelons, sugarcane for sirup, and some vegetables are grown for market.

Good yields of most crops are produced on the nearly level soils of this association if the soils are well managed and adequately fertilized. The side slopes are not well suited to cultivation, because of the rapid runoff and erosion. The side slopes that adjoin wet bottom lands have potential for high yields of wood crops.

2. Providence-Bude Association

Moderately well drained and somewhat poorly drained soils of nearly level and gently sloping, broad ridges

This association is in an area of broad, nearly level and gently sloping ridges in the extreme northwestern corner of the county. There are many small permanent and intermittent streams. The valleys of the streams range from narrow to comparatively wide.

The Providence soils are nearly level to moderately sloping. They have a surface layer of dark-brown to grayish-brown silt loam and a subsoil of yellowish-brown silty clay loam. The Bude soils are nearly level. They have a surface layer of brown to dark grayish-brown silt loam and a subsoil of brown to light yellowish-brown silty clay loam. The Providence and Bude soils have a firm layer in the subsoil that is called a fragipan.

Minor soils in this association are the poorly drained Henry soils and the somewhat poorly drained Falkner soils. The Henry soils are in shallow depressions, and the Falkner are on flat ridgetops and in other nearly level areas.

Most of this association is used for crops and pasture; about one-third is in forest. The trees are primarily of low quality. The farms are small, and most of them are operated by the owner. Much of the farming is part time. Cotton and corn are the principal row crops.

Because of the fragipan near the surface, there is a perched water table during wet seasons and the soils are droughty during dry seasons. These soils are suited to field crops, pasture, and forest. They have high potential for production of loblolly and slash pine.

3. Bibb-Myatt-Ochlockonee Association

Nearly level soils of flood plains and stream terraces

This association is on nearly level flood plains and stream terraces. The soils were formed in alluvium of the Coastal Plain. The association occupies about 22 percent of the county. The largest acreage is along Leaf River and along Oakohay and Okatoma Creeks.

Bibb soils make up about 30 percent of this association; Myatt soils, 20 percent; and Ochlockonee soils, 15 percent. Of the minor soils, the Falaya make up 10 percent of the association; Prentiss soils, 7 percent; Iuka soils, 5 percent; Stough soils, 3 percent; and other minor soils, 10 percent.

The Bibb soils are poorly drained and are on bottom lands. They have a surface layer of light brownish-gray to dark grayish-brown fine sandy loam to silt loam and a subsoil of light-gray to gray loam. The Myatt soils are poorly drained and are on stream terraces. They have a surface layer of very dark gray to grayish-brown silt loam and a subsoil of light-gray to gray silt loam to silty clay loam. A fragipan is about 16 inches beneath the surface. The Ochlockonee soils are well drained and are on bottom lands. They have a surface layer of light grayish-brown to dark-brown fine sandy loam to silt loam and a subsoil of light yellowish-brown to dark-brown fine sandy loam to silt loam.

The Falaya soils are somewhat poorly drained and are on bottom lands. Their surface layer is grayish brown to light brownish gray, and they have a subsoil of pale-brown to brownish-gray silt loam. The Prentiss soils are moderately well drained and are on stream terraces. They have a surface layer of dark-gray to dark-brown fine sandy loam and a subsoil of yellowish-brown fine sandy loam to clay loam. The Prentiss soils have a fragipan about 20 to 26 inches beneath the surface. The Iuka soils are moderately well drained and are on bottom lands. Their surface layer is dark grayish-brown to brown, friable silt loam, and their subsoil is yellowish-brown to

light brownish-gray, friable silt loam. The Stough soils are on stream terraces. They are somewhat poorly drained and have a surface layer of very dark gray to grayish-brown silt loam and a subsoil of light-gray to gray silt loam to silty clay loam. The Stough soils have a fragipan about 18 inches beneath the surface.

The other minor soils of this association are the well drained Cahaba soils, the moderately well drained Tilden and Izagora soils, and the poorly drained Leaf soils of stream terraces.

The soils of bottom lands are of limited use for crops because they are subject to frequent flooding. The soils of stream terraces are also limited because of a seasonal water table near the surface.

The farms of this association are medium to small and are of the general type. They are usually operated by the owner on a full-time basis. If these soils are adequately drained, they are suited to row crops and pasture. Where they have not been drained, they are well suited to the production of wood products. Cotton, corn, and hay are the chief crops grown. The raising of livestock is also a major enterprise.

How Soils Are Mapped and Classified

Soil scientists made this survey to learn what kinds of soils are in Covington 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; kinds of rock; 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 report 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. Boswell and Bude, for example, are the names of two soil series. All of the soils in the United States having the same series name are essentially alike in those characteristics that go with their behavior in the natural, untouched landscape. Soils of one series can differ somewhat in texture of the surface layer and in slope, stoniness, or some other characteristic that affects use of the soils by man.

Many soil series contain soils that differ in the 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. Ora fine sandy loam and Ora silt loam, heavy substratum, are two soil types in the Ora series. The difference in the texture of their surface layer is apparent from their names.

Some soil types vary so much in slope, degree of erosion, number and size of stones, 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 soil phases. The name of a soil phase indicates a feature that affects management. For example, Ruston fine sandy loam, 2 to 5 percent slopes, is one of several phases of Ruston fine sandy loam, a soil type that ranges from nearly level to steep.

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

Another kind of mapping unit is the undifferentiated group of soils. The soils that make up an undifferentiated unit could be mapped separately if it seemed worthwhile or practical. It is generally not practical, however, because there is no uniformity in pattern or proportion of component soils from one delineation to the next. Ordinarily, an undifferentiated unit is named for the major soil series in it, for example, Ochlockonee, Mantachie, and Iuka soils. Also, in most mapping, there are areas to be shown that are so rocky, so shallow, or so frequently worked by wind and water that they cannot be called soils. These areas are shown on a soil map like other mapping units, but they are given descriptive names, such as Gullied land, and are called land types rather than soils.

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 or plot experiments on the same kinds of soils. Yields under defined management are estimated for all the soils.

But only part of the 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 a way that it is readily useful to different groups of readers, among them farmers, ranchers, managers of woodland and rangeland, engineers, and homeowners. Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in the soil survey reports. Based on the yield and

practices tables and on other data, the soil scientists set up trial groups, and test them by further study and by consultation with farmers, agronomists, engineers, and others. Then, the scientists 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.

Description of Soils

This section is provided for those who want information about the soils in the county. It describes the individual soils, or mapping units; that is, the areas on the detailed soil map that are bounded by lines and are identified by a symbol. For more general information about the soils, the reader can refer to the section "General Soil Map" in which the broad patterns of soils are described. A more detailed description of each soil series is given in the section "Formation, Morphology, and Classification of Soils." The approximate acreage and proportionate extent of each soil mapped in the county are given in table 1. The location of the soils is shown on the soil map at the back of the report.

In the descriptions that follow, the soils in a series are first discussed as a group by describing important characteristics that apply to all the soils in the series. Generally, the location of the soils is given, as well as their position on the landscape. Some of the soils nearby are named, and their profile is compared to the profile described. The general description of the series ends with a broad statement that tells how the soils are used.

The names of most of the soils give the texture of the surface layer, and many give the range in slope. The profile described under the first mapping unit is considered to be representative for all the soils in that series. The other soil descriptions generally tell how the profile of the soil described differs from the one given as representative of the series. These descriptions also tell something about the suitability of each soil for crops and something about the management needs. Definitions of many of the terms used in this section are given in the Glossary.

Bibb Series

The Bibb series consists of nearly level, poorly drained soils on flood plains of the Coastal Plain. The soils formed in alluvium. They have a surface layer of grayish-brown to light grayish-brown fine sandy loam or silt loam and a subsoil of light-gray or gray, mottled, stratified silt loam, fine sandy loam, or silty clay loam. The Bibb soils are low in fertility and in content of organic matter, and they are strongly acid.

These soils occur in the same general areas as the Ochlockonee, Iuka, and Mantachie soils, but they are more poorly drained than those soils. Their subsoil is also more highly mottled and grayer. The Bibb soils have a higher water table and are wetter for longer periods than the Ochlockonee and Mantachie soils.

The Bibb soils occur near streams and drainageways throughout the county. The natural vegetation is a bottom-land hardwood forest and an understory of shrubs, vines, and switchcane. The high water table and slow surface runoff limit the suitability of these soils for cultivation.

Bibb and Waverly soils (Bb).—In this undifferentiated soil group are the only Bibb and Waverly soils mapped in the county. The soils are poorly drained and are on flood plains. Bibb soils occupy about 65 percent of the acreage, and Waverly soils, about 35 percent.

The major horizons in a Bibb soil are—

0 to 15 inches, grayish-brown to light-gray, friable silt loam.
15 to 34 inches, mottled gray silty clay loam.
34 to 46 inches, gray sandy clay loam.

The major horizons in a Bibb soil are—

0 to 7 inches, dark grayish-brown to light grayish-brown, friable silt loam.
7 to 25 inches, light grayish-brown, friable silt loam.
25 to 50 inches, olive-gray to grayish-brown, firm silty clay loam.

The texture of the surface layer is dominantly silt loam, but in some areas it is fine sandy loam. The texture of the subsoil ranges from silty clay loam or silt loam to sandy clay loam.

The soils of this unit have fairly good tilth, but they tend to crust when bare. A high water table, poor surface drainage, and frequent overflow during the winter and spring are hazards if crops are grown. Only a few late row crops are suited, but pasture is fairly well suited if good management is used and if surface drainage is provided. Forest is well suited.

Capability unit IVw–1; woodland suitability group 3; Alluvial Land range site.

Boswell Series

The Boswell series consists of moderately well drained soils on uplands of the Coastal Plain. Where the soils are not eroded, they have a surface layer of loam or fine sandy loam and a subsoil of red, plastic clay. Mottled, plastic clay is 13 to 18 inches beneath the surface. The soils are low in fertility and in content of organic matter. They are strongly acid.

These soils are adjacent to the Susquehanna soils on gentle slopes. They are better drained than the Susquehanna soils, and they have a distinct, rather thin subsoil that is underlain by mottled, plastic clay.

The Boswell soils occur in an undifferentiated unit with Cuthbert and Savannah soils in areas that are strongly sloping to steep. They are less stratified and more sticky and plastic than the Cuthbert soils. The Boswell soils are redder and contain more clay than the Savannah soils, and they also lack a fragipan.

The Boswell soils are in small areas, mostly in the west-central part of the county. The natural vegetation is mainly longleaf pine, scrubby hardwoods, and an understory of shrubs and grasses. These soils are shallow over plastic clay, which limits their use for cultivated crops.

Boswell silt loam, 2 to 5 percent slopes (BoB).—This moderately well drained soil of the uplands has a subsoil of red clay. The major horizons are—

0 to 5 inches, dark-gray to light-gray, friable silt loam.
5 to 23 inches, red, plastic clay that is mottled in the lower 6 inches.
23 to 60 inches, mottled gray and red, plastic clay.

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

Soil	Acres	Percent	Soil	Acres	Percent
Bibb and Waverly soils	10,050	3.8	Ora silt loam, heavy substratum, 5 to 8 percent slopes, eroded	360	0.1
Boswell silt loam, 2 to 5 percent slopes	1,685	.6	Pheba loam, 0 to 2 percent slopes	2,030	.8
Boswell silt loam, 5 to 8 percent slopes	485	.2	Pheba loam, 2 to 5 percent slopes	1,610	.6
Boswell silt loam, 5 to 8 percent slopes, eroded	485	.2	Prentiss fine sandy loam, 0 to 2 percent slopes	2,365	.9
Boswell silt loam, 8 to 17 percent slopes	595	.2	Prentiss fine sandy loam, 2 to 5 percent slopes	1,184	.4
Boswell, Cuthbert, and Savannah soils, 8 to 17 percent slopes	1,502	.6	Providence silt loam, 0 to 2 percent slopes	265	.1
Boswell and Savannah soils, 2 to 8 percent slopes	4,625	1.7	Providence silt loam, 2 to 5 percent slopes	1,175	.4
Bude silt loam, 0 to 2 percent slopes	525	.2	Providence silt loam, 2 to 5 percent slopes, eroded	960	.4
Bude silt loam, 2 to 5 percent slopes	1,050	.4	Providence silt loam, 5 to 8 percent slopes	460	.2
Bude silt loam, 2 to 5 percent slopes, eroded	323	.1	Ruston fine sandy loam, 0 to 2 percent slopes	1,075	.4
Cahaba fine sandy loam, 0 to 2 percent slopes	1,480	.6	Ruston fine sandy loam, 2 to 5 percent slopes	21,148	7.9
Cahaba fine sandy loam, 2 to 5 percent slopes	2,100	.8	Ruston fine sandy loam, 2 to 5 percent slopes, eroded	22,835	8.6
Collins and Iuka soils	1,610	.6	Ruston fine sandy loam, 5 to 8 percent slopes	6,880	2.6
Collins and Iuka soils, local alluvium	540	.2	Ruston fine sandy loam, 5 to 8 percent slopes, eroded	5,160	1.9
Eustis loamy sand, 2 to 5 percent slopes	280	.1	Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded	1,075	.4
Eustis loamy sand, 5 to 8 percent slopes	675	.3	Ruston fine sandy loam, 8 to 12 percent slopes	3,655	1.4
Eustis loamy sand, 8 to 12 percent slopes	350	.1	Ruston fine sandy loam, 8 to 12 percent slopes, eroded	3,975	1.5
Eustis loamy sand, 12 to 40 percent slopes	940	.4	Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded	1,180	.4
Eustis loamy sand, terrace, 0 to 2 percent slopes	2,900	1.1	Ruston fine sandy loam, 12 to 17 percent slopes	15,787	5.9
Eustis and Ruston soils, 12 to 40 percent slopes	7,745	2.9	Ruston fine sandy loam, 12 to 17 percent slopes, eroded	18,109	6.8
Falkner silt loam, 0 to 2 percent slopes	355	.1	Ruston fine sandy loam, 12 to 17 percent slopes, severely eroded	3,760	1.4
Falkner silt loam, 2 to 5 percent slopes	2,330	.9	Ruston fine sandy loam, 17 to 40 percent slopes	8,600	3.2
Guin gravelly sandy loam, 8 to 12 percent slopes	262	.1	Ruston fine sandy loam, 17 to 40 percent slopes, eroded	1,047	.4
Guin gravelly sandy loam, 12 to 40 percent slopes	685	.3	Ruston fine sandy loam, 17 to 40 percent slopes, severely eroded	523	.2
Guin and Saffell gravelly sandy loams, 2 to 8 percent slopes	355	.1	Ruston, Ora, and Cuthbert soils, 5 to 12 percent slopes	2,930	1.1
Gullied land	645	.2	Savannah loam, 0 to 2 percent slopes	690	.3
Henry silt loam	990	.4	Savannah loam, 2 to 5 percent slopes	5,872	2.2
Izagora fine sandy loam, 0 to 2 percent slopes	360	.1	Savannah loam, 2 to 5 percent slopes, eroded	5,420	2.0
Leaf silt loam	1,105	.4	Savannah loam, 5 to 8 percent slopes	1,505	.6
Mantachie and Falaya soils	5,805	2.2	Savannah loam, 5 to 8 percent slopes, eroded	1,120	.4
Myatt silt loam	8,000	3.0	Stough fine sandy loam, 0 to 2 percent slopes	1,782	.7
Ochlockonee fine sandy loam	2,450	.9	Stough fine sandy loam, 2 to 5 percent slopes	645	.2
Ochlockonee soils, local alluvium	2,140	.8	Susquehanna soils, 2 to 5 percent slopes	1,270	.5
Ochlockonee, Mantachie, and Iuka soils	10,349	3.9	Susquehanna soils, 5 to 8 percent slopes	1,220	.5
Ora fine sandy loam, 0 to 2 percent slopes	970	.4	Susquehanna soils, 8 to 17 percent slopes	1,195	.4
Ora fine sandy loam, 2 to 5 percent slopes	5,375	2.0	Swamp	4,713	1.8
Ora fine sandy loam, 2 to 5 percent slopes, eroded	13,731	5.2	Tilden fine sandy loam, 0 to 2 percent slopes	1,588	.6
Ora fine sandy loam, 5 to 8 percent slopes	1,290	.5	Tilden fine sandy loam, 2 to 5 percent slopes	860	.3
Ora fine sandy loam, 5 to 8 percent slopes, eroded	5,805	2.2	Vicksburg silt loam	895	.3
Ora fine sandy loam, 5 to 8 percent slopes, severely eroded	1,265	.5	Total	266,240	100.0
Ora fine sandy loam, 8 to 12 percent slopes	860	.3			
Ora fine sandy loam, 8 to 12 percent slopes, eroded	2,085	.8			
Ora silt loam, heavy substratum, 2 to 5 percent slopes	545	.2			
Ora silt loam, heavy substratum, 2 to 5 percent slopes, eroded	1,615	.6			

Some areas under cultivation have a brown plow layer. The surface layer in some places is fine sandy loam or sandy loam and ranges from 3 to 6 inches in thickness. The texture of the subsoil ranges from clay to silty clay.

This soil is low in organic matter and is strongly acid. The available moisture capacity is moderate. Where the soil is not eroded, the surface layer is in good tilth, and good tilth is easily maintained. The subsoil is slowly permeable, and the soil hardens and cracks as it dries. This soil is poorly suited to cultivation. If it is cultivated, erosion is a moderate hazard. It is well suited to pasture and pine forest.

Capability unit IIIe–3; woodland suitability group 1; Coastal Plain Hills (Level to Gently Undulating) range site.

Boswell silt loam, 5 to 8 percent slopes (BoC).—This soil has a profile similar to that of Boswell silt loam, 2 to 5 percent slopes. The moderate slope, slow permeability, and clayey subsoil limit its use and the range of suitable crops.

Capability unit IVe–3; woodland suitability group 1; Coastal Plain Hills (Level to Gently Undulating) range site.

Boswell silt loam, 5 to 8 percent slopes, eroded (BoC2).—In this soil the surface layer in most places is 1 to 3 inches thinner than that of Boswell silt loam, 2 to

5 percent slopes. There are a few severely eroded patches. In these the red subsoil is exposed.

Infiltration is slower than in the less eroded Boswell soils, and surface runoff is greater. The available moisture capacity is moderate, and tilth is very poor.

Nearly all of this soil has been cultivated, but much of it has reverted to forest or is idle. The soil is poorly suited to cultivation. It is fairly well suited to pasture and is well suited to forest.

Capability unit IVe–3; woodland suitability group 1; Coastal Plain Hills (Level to Gently Undulating) range site.

Boswell silt loam, 8 to 17 percent slopes (BoD).—Where this soil is cultivated, surface runoff is rapid and the hazard of erosion is high. About one-third of the acreage is moderately eroded. In the eroded areas the surface layer is 1 to 3 inches thinner than that of Boswell silt loam, 2 to 5 percent slopes.

The strong slopes, slow permeability, and rapid runoff are the major limitations to the use of this soil. The soil is fairly well suited to pasture and is well suited to forest. Many of the areas that have been cultivated are reverting to forest.

Capability unit VIIe–2; woodland suitability group 1; Coastal Plain Hills (Steep) range site.

Boswell, Cuthbert, and Savannah soils, 8 to 17 percent slopes (BrD).—In some parts of the county it was impractical to map the Boswell, Cuthbert, and Savannah soils separately, because these soils occur in a mixed pattern and are covered by forest. The soils were therefore mapped as an undifferentiated group of soils. Most of the areas contain soils of all three series.

A profile of a Boswell silt loam is described under Boswell silt loam, 2 to 5 percent slopes, and a profile of a Savannah loam is described under the Savannah series. The major horizons in a Cuthbert fine sandy loam are—

0 to 6 inches, brown fine sandy loam.
6 to 36 inches, yellowish-red sandy clay loam mottled with red, light gray, and yellow.
36 to 48 inches, mottled yellowish-brown, yellow, and light-gray, thinly bedded sandy clay loam and clay.

These soils are low in fertility, low in content of organic matter, and strongly acid. The available moisture capacity is moderate, infiltration is moderate to slow, and runoff is moderate to rapid. Permeability is generally slow.

The soils have good tilth. The steep slopes and the slowly permeable subsoil in the Boswell and Cuthbert soils, however, limit use for crops. The Savannah soils have an impervious fragipan at a depth of 18 to 20 inches or more.

Pasture and hay crops are fairly well suited to poorly suited, and forest is well suited. Most of the acreage is in forest. The original forest consisted mainly of longleaf and loblolly pine, but there were some hardwoods. The undergrowth was chiefly low shrubs and grasses.

Capability unit VIIe–2; woodland suitability group 1; Coastal Plain Hills (Steep) range site.

Boswell and Savannah soils, 2 to 8 percent slopes (BsC).—This undifferentiated unit consists of moderately well drained Boswell and Savannah soils. The Boswell soils formed in clays of the Coastal Plain, and the Savannah soils, in sandy material of the Coastal Plain. Approximately 50 percent of the acreage is Boswell soils, and 35 percent is Savannah soils. The rest is moderately well drained Cuthbert soils and somewhat poorly drained Susquehanna soils.

A profile of a Boswell silt loam is described under Boswell silt loam, 2 to 5 percent slopes. A profile of a Savannah loam is described under the Savannah series.

Where the surface layer is not eroded, the Boswell and Savannah soils have good tilth. The content of organic matter is low, and the available moisture capacity is moderate. The soils are strongly acid. Because the subsoil of the Boswell soils is slowly permeable, these soils harden and crack as they dry. The Savannah soils have good tilth, but an impervious fragipan limits their use for crops. The hazard of erosion is moderate if these soils are cultivated.

The soils of this unit are poorly suited to fairly well suited to field crops. They are fairly well suited to pasture and are well suited to forest. Approximately 25 percent of the acreage has been cultivated, but most of these areas have reverted to pine forest or are idle. A small acreage is used for pasture, and the rest is wooded.

Capability unit IIIe–3; woodland suitability group 1; Coastal Plain Hills (Level to Gently Undulating) range site.

Bude Series

The Bude series consists of somewhat poorly drained, nearly level and gently sloping soils on uplands that are covered by a thin mantle of loess. Where these soils have not been cultivated, they have a surface layer of dark grayish-brown silt loam and a subsoil of yellowish-brown silt loam to silty clay loam. A mottled, compact fragipan is about 16 inches beneath the surface. These soils are low to moderate in fertility, low in content of organic matter, and strongly acid.

These soils occur with the Providence and Falkner soils. They are more poorly drained and have a thinner subsoil above the fragipan than the Providence soils. Unlike the Falkner soils, they have a fragipan, rather than a subsoil of plastic clay.

The Bude soils occur in large areas in the northwestern part of the county. The natural vegetation consists of a forest of loblolly pine and hardwoods with an understory of native grasses and shrubs. About 75 percent of the acreage is cultivated or pastured. The fragipan near the surface limits the suitability of the soils for some crops.

Bude silt loam, 0 to 2 percent slopes (BuA).—This somewhat poorly drained soil of the uplands has a fragipan about 16 inches beneath the surface. The major horizons are—

0 to 7 inches, dark grayish-brown to yellowish-brown, friable silt loam.
7 to 16 inches, yellowish-brown silty clay loam.
16 to 48 inches, (fragipan) mottled, mixed yellowish-red, light-gray, and dark-brown, compact, brittle silt loam.
48 to 60 inches +, mottled yellow, brown, and red, firm silty clay.

The cultivated areas have a pale-brown or brown plow layer. The subsoil ranges from yellowish brown to strong brown in color, from silt loam to silty clay loam in texture, and from 6 to 8 inches in thickness. The depth to the fragipan ranges from 14 to 18 inches.

This soil is strongly acid, low in natural fertility, and low in content of organic matter. It can be tilled within only a fairly narrow range of moisture content, and it is commonly too wet or too dry for tillage, depending upon the season. The fragipan limits the depth to which roots can penetrate and the amount of moisture available to plants. Because of the slow surface runoff and the slow rate of infiltration, graded rows and W-type ditches are needed to remove excess surface water during wet periods.

The surface layer tends to pack when this soil is cultivated. Slow surface runoff and a perched water table during the wet season limit the use of the soil for crops. If this soil is drained and good management is used, it is suitable for cultivated crops. It is also well suited to forest. Included in mapping are small areas of Henry and Providence soils.

Capability unit IIIw–1; woodland suitability group 7; Loess Hills range site.

Bude silt loam, 2 to 5 percent slopes (BuB).—This soil has better surface drainage than Bude silt loam, 0 to 2 percent slopes, but there is a slight to moderate hazard of erosion if it is cultivated. The slow internal drainage and the fragipan near the surface limit the range of suitable crops.

Capability unit IIIw–1; woodland suitability group 7; Loess Hills range site.

Bude silt loam, 2 to 5 percent slopes, eroded (BuB2).—The surface layer of this soil varies in thickness, but in most places it is about 3 inches thinner than that of Bude silt loam, 0 to 2 percent slopes. In addition, the rate of infiltration is slower and runoff is greater. As a result, there is a greater hazard of erosion.

Most of this soil is suited to a limited number of row crops. The soil is well suited to pasture and pine trees.

Capability unit IIIw–1; woodland suitability group 7; Loess Hills range site.

Cahaba Series

The Cahaba series consists of nearly level and gently sloping, well-drained soils on stream terraces of the Coastal Plain. The surface layer is dark-brown to yellowish-brown fine sandy loam, and the subsoil is strong-brown to yellowish-red loam to clay loam. The soils are low in fertility and in content of organic matter, and they are strongly acid.

The Cahaba soils are in the same general areas as the Tilden, Prentiss, Stough, Myatt, and Leaf soils. They are better drained than any of those soils. They also lack the fragipan that is present in the Tilden, Prentiss, Stough, and Myatt soils, and their subsoil is more brownish or reddish than that of the Stough soils. The Cahaba soils are less grayish than the Myatt soils, and they have a coarser textured surface layer. They are more brownish than the Leaf soils, and they have less clay in the subsoil.

The soils of the Cahaba series are on stream terraces throughout the county. The natural vegetation is mostly forests of shortleaf pine, loblolly pine, and hardwoods with an understory of sedge grasses and shrubs. Most of the acreage is cultivated or in pasture. Good tilth, moderate permeability, moderate capacity for available moisture, and favorable slopes make these soils good for crops.

725–019—65——2

Cahaba fine sandy loam, 0 to 2 percent slopes (CaA).—This is a well-drained soil of the stream terraces. The major horizons are—

0 to 11 inches, dark-brown to yellowish-red, friable fine sandy loam.
11 to 37 inches, yellowish-red to strong-brown, friable loam.
37 to 60 inches, strong-brown, very friable fine sandy loam.

In some areas that have been cultivated, the surface layer is yellowish brown. In places there are mottles in the lower part of the subsoil.

This soil is low in natural fertility and in content of organic matter, but it has a thick root zone. Good tilth is easily maintained. Runoff is slow, and the hazard of erosion is slight if the soil is cultivated.

This is one of the most productive soils in the county. It is well suited to cultivation and can be used for many different crops. Because of the slow surface runoff, graded rows are needed in some places to remove excess surface water during wet periods. This soil is well suited to irrigation and can be leveled to help the flow of water and to improve surface drainage.

Capability unit I–1; woodland suitability group 4; Coastal Plain Hills (Level to Gently Undulating) range site.

Cahaba fine sandy loam, 2 to 5 percent slopes (CaB).—This soil has a profile similar to that of Cahaba fine sandy loam, 0 to 2 percent slopes. The runoff in cultivated fields causes a slight to moderate hazard of erosion. This soil is easily irrigated. It can be leveled so that water can be spread more evenly and surface drainage will be improved.

The gentle slope, moderate permeability, and moderate available moisture capacity make this soil well suited to crops. Also, good tilth is easily maintained.

Capability unit IIe–1; woodland suitability group 4; Coastal Plain Hills (Level to Gently Undulating) range site.

Collins Series

The Collins series consists of soils that are nearly level and moderately well drained. The soils formed in alluvium washed from hills that were covered by a thin mantle of loess. The surface layer is dark grayish-brown silt loam, and the upper part of the subsoil is brown to yellowish-brown silt loam. Brown and strong-brown mottles are about 20 inches below the surface.

These soils are moderate to high in natural fertility and low in content of organic matter. They are medium acid.

The Collins soils occur with the Falaya, Waverly, Iuka, and Mantachie soils. They are more brownish and better drained than the Falaya and Waverly soils. Their drainage is similar to that of the Iuka soils, but they have a more silty profile. They are more silty and better drained than the Mantachie soils.

The Collins soils are mainly in the western and northwestern parts of the county. The native vegetation was a forest of different kinds of hardwood. The chief trees grown commercially are eastern cottonwood, various kinds of oaks, southern magnolia, sweetgum, American sycamore, and black tupelo. The understory is holly, hawthorn, low shrubs, and vines. Much of the acreage is now cultivated or in pasture. Occasional overflow is a moderate hazard where cultivated crops are grown.

Collins and Iuka soils (Co).—Nearly level, friable, acid soils formed in recently deposited alluvium make up this undifferentiated soil group. The soils are moderately well drained, but they are subject to overflow. The Collins and Iuka soils occur in almost equal proportions. In most places the texture of their surface layer is silt loam.

The major horizons in a Collins silt loam are—

0 to 4 inches, dark grayish-brown, friable silt loam.
4 to 20 inches, brown, friable silt loam.
20 to 60 inches, yellowish-brown to light brownish-gray silt loam to silty clay loam; many, distinct mottles of brown and dark brown.

The major horizons in an Iuka silt loam are—

0 to 7 inches, dark grayish-brown friable silt loam.
7 to 30 inches, yellowish-brown, friable silt loam with pockets of fine sandy loam.
30 to 56 inches, light brownish-gray, friable silt loam with pockets and strata of fine sandy loam.

The surface layer is predominantly light grayish-brown to dark grayish-brown silt loam, but in places the texture ranges to fine sandy loam or loam. The subsoil is generally yellowish-brown to brown, friable silt loam, but in places it consists of stratified silt loam, loam, and fine sandy loam.

These soils are moderate in natural fertility and low in content of organic matter, but they have a thick root zone. Water moves into and through the profile at a moderate rate, and the available moisture capacity is high. The surface layer is in good tilth, but the soils tend to puddle or pack if they are cultivated.

The moderate permeability, nearly level relief, and favorable available moisture capacity make these soils well suited to cultivation. Open ditches and graded rows are needed in some places, however, to remove excess surface water. These soils are suited to irrigation and can be smoothed so that water can be spread more evenly. There is a moderate hazard of overflow.

Capability unit IIw–1; woodland suitability group 8; Alluvial Land range site.

Collins and Iuka soils, local alluvium (Cu).—These soils are on the flood plains of small streams and are adjacent to hill slopes on the flood plains of larger streams. Their surface layer is more variable than that in the profiles described under the mapping unit named as Collins and Iuka soils. It also contains a higher proportion of sand and is 4 to 12 inches thicker. The subsoil is more stratified, and recent material has been deposited over an old buried soil.

These soils are moderate in natural fertility and are low in content of organic matter. They have a thick root zone and are easily worked, but they tend to crust and pack when bare. Water moves into and through the profile at a moderate rate. The available moisture capacity is high.

Most of the acreage is cultivated or in pasture. The soils are well suited to cultivation, but they need drainage and protection from overflow. Diversion ditches are effective in protecting these soils from runoff from the adjacent slopes.

Capability unit IIw–1; woodland suitability group 8; Alluvial Land range site.

Cuthbert Series

The Cuthbert series consists of strongly sloping to steep, moderately well drained soils of the uplands. The soils formed in Coastal Plain clays that contained lenses of sandy material.

The Cuthbert soils occur with the Boswell and Savannah soils in an undifferentiated unit. They are less sticky and plastic than the Boswell soils, and they contain lenses of sandy material. The Cuthbert soils are finer textured than the Savannah soils, and they lack a fragipan.

A profile considered typical of the Cuthbert soils is described in the Boswell series under Boswell, Cuthbert, and Savannah soils, 8 to 17 percent slopes.

Eustis Series

The Eustis series consists of nearly level to very steep, somewhat excessively drained soils on uplands of the Coastal Plain. The surface layer is dark grayish-brown loamy sand, and the subsoil is strong-brown or brown loamy sand. These soils are low in fertility, in content of organic matter, and in available moisture capacity.

The Eustis soils in many places are adjacent to the Ruston soils, but they are less sloping than those soils. They are also adjacent to the nearly level to gently sloping Cahaba, Tilden, and Prentiss soils. The Eustis soils have a less reddish subsoil than the Ruston and Cahaba soils, and they are somewhat excessively drained, rather than well drained. They are coarser textured than the Tilden and Prentiss soils, which are moderately well drained, and they lack the fragipan that is present in those soils.

The Eustis soils generally occur in small areas. The natural vegetation is longleaf pine, hardwoods, and an understory of shrubs and grasses. Some of the acreage is in native pasture. The soils are too droughty to be well suited to crops.

Eustis loamy sand, 2 to 5 percent slopes (EsB).—This is a somewhat excessively drained soil of the uplands. The major horizons are—

0 to 2 inches, very dark grayish-brown, very friable loamy sand.
2 to 18 inches, dark-brown to reddish-brown, very friable loamy fine sand.
18 to 63 inches, strong-brown to reddish-yellow, very friable loamy sand.
63 to 72 inches +, pink to very pale brown, single grain sand.

In areas that are cultivated, the surface layer is grayish brown. The color of the subsoil ranges from yellowish brown to yellowish red. In places the surface layer is loamy fine sand, and it ranges from 2 to 10 inches in thickness. The subsoil ranges from 5 to many feet in thickness.

This soil has good tilth and a thick root zone, but the natural fertility and the content of organic matter are low. Surface runoff is slow, permeability is rapid, and the available moisture capacity is low. There is little or no hazard of erosion if this soil is cultivated. The soil is strongly acid. It is of limited use for crops because it is droughty.

Capability unit IIIs–1; woodland suitability group 6; Coastal Plain Hills (Sandy and Gravelly) range site.

Eustis loamy sand, 5 to 8 percent slopes (EsC).—The profile of this soil is similar to that of Eustis loamy sand, 2 to 5 percent slopes, but the surface layer is only 2 to 8 inches thick. Most of the acreage is wooded, but a small

acreage is used for pasture. This soil is suited to a limited number of cultivated crops and is fairly well suited to pasture, but it is probably best suited to longleaf pine.

Capability unit IVs–1; woodland suitability group 6; Coastal Plain Hills (Sandy and Gravelly) range site.

Eustis loamy sand, 8 to 12 percent slopes (EsD).—The surface layer of this soil is only 2 to 6 inches thick. Surface runoff is slow, and there is a slight hazard of erosion if the soil is cultivated. A small acreage has been cultivated, but this soil is not well suited to cultivated crops and is poorly suited to pasture.

Capability unit VIs–1; woodland suitability group 6; Coastal Plain Hills (Sandy and Gravelly) range site.

Eustis loamy sand, 12 to 40 percent slopes (EsF).—The surface layer of this soil is 2 to 6 inches thick. Medium surface runoff causes a moderate hazard of erosion if cultivated crops are grown. The low available moisture capacity, steep slopes, and narrow range of crops make this soil unsuitable for cultivation.

Capability unit VIIs–1; woodland suitability group 6; Coastal Plains Hills (Sandy and Gravelly) range site.

Eustis loamy sand, terrace, 0 to 2 percent slopes (EtA).—This somewhat excessively drained soil is on stream terraces. The surface layer is very dark grayish-brown to dark-brown loamy sand. The color of the subsoil ranges from yellowish brown to yellowish red, and the texture ranges from loamy fine sand to very fine sand.

This soil is strongly acid. Surface runoff is slow, and the rate of infiltration is rapid. The soil is rapidly permeable, and there is no hazard of erosion. Natural fertility, and the content of organic matter are low. Only certain crops can be grown on this soil because of the low available moisture capacity. The soil can be used for pasture, but it is better suited to pines.

Capability unit IIIs–1; woodland suitability group 6; Coastal Plain Hills (Sandy and Gravelly) range site.

Eustis and Ruston soils, 12 to 40 percent slopes (EuF).—In this unit 55 percent of the acreage consists of somewhat excessively drained Eustis soils, and 35 percent, of well-drained Ruston soils. The rest consists of small areas of moderately well drained Cuthbert and Boswell soils, of somewhat poorly drained Susquehanna soils, and of a few areas of Guin and Saffell soils. A profile of a Ruston fine sandy loam is described under the Ruston series. The major horizons in a Eustis loamy sand are—

0 to 2 inches, very dark grayish-brown, very friable loamy fine sand.
2 to 18 inches, dark-brown to reddish-brown, very friable loamy fine sand.
18 to 63 inches, strong-brown to reddish-yellow, very friable loamy sand.
63 to 72 inches +, pink to very pale brown, single grain sand.

These soils are poorly suited to row crops. Surface runoff is medium to rapid, the hazard of erosion is moderate to high, and permeability ranges from rapid to slow. Natural fertility is low, and the content of organic matter is low, except in the topmost 1 or 2 inches of soil material in wooded areas. The soils are very strongly acid to strongly acid. This wide range in characteristics plus the strong to steep slopes make treatment and use of these soils difficult. The less steep slopes can be used for pasture, but the steeper areas are best used for forest and wildlife. Small areas have been cultivated, and those areas are moderately eroded. Most of the acreage is wooded, and the rest is in pasture.

Capability unit VIIs–1; woodland suitability group 6; Coastal Plain Hills (Sandy and Gravelly) range site.

Falaya Series

The Falaya series consists of soils that are nearly level and somewhat poorly drained. The soils formed in alluvium washed from hills that are covered by a thin mantle of loess. The surface layer is brown to dark grayish-brown, friable silt loam, and the subsoil is yellowish-brown to light brownish-gray, friable silt loam. Brown to strong-brown and gray mottles are about 6 to 18 inches below the surface. These soils are moderate to high in natural fertility, low in content of organic matter, and medium acid.

The Falaya soils occur with the Collins, Waverly, Mantachie, and Iuka soils. They are grayer and more poorly drained than the Collins soils, and they are browner and better drained than the Waverly soils. The Falaya soils are similar to the Mantachie soils in drainage, but they are more silty. They are more poorly drained and more silty than the Iuka soils.

The Falaya soils are mainly in the western part of the county. The native vegetation is a forest of different kinds of hardwoods. The chief trees grown commercially are eastern cottonwood, various kinds of oaks, southern magnolia, sweetgum, American sycamore, and black tupelo. The understory is holly, hawthorn, low shrubs, and vines. Much of the acreage is cultivated or in pasture. The somewhat poor drainage and occasional flooding are moderate hazards where cultivated crops are grown.

A brief description of a profile considered typical of the Falaya soils is given under the Mantachie series, in the undifferentiated mapping unit Mantachie and Falaya soils.

Falkner Series

The Falkner series consists of nearly level and gently sloping, somewhat poorly drained soils on uplands that are underlain by a thin layer of loess. The soils formed in Coastal Plain clays that were covered by a thin mantle of loess. The surface layer is gray silt loam, and the upper part of the subsoil is light yellowish-brown silt loam or silty clay loam. Mottled, plastic clay is about 16 inches beneath the surface. The soils of the Falkner series are low to moderate in fertility and low in content of organic matter. They are strongly acid.

The Falkner soils occur with well drained Bude and Providence soils and with moderately well drained Boswell and somewhat poorly drained Susquehanna soils. They lack the fragipan that is present in the Bude and Providence soils, and they are more poorly drained and have a less brownish subsoil than the Providence soils. They are less steep than the Boswell and Susquehanna soils, and their subsoil is less clayey, less grayish, and less mottled.

The Falkner soils are in fairly large areas, mainly in the western part of the county. The natural vegetation is loblolly pine, hardwoods, and an understory of native grasses and shrubs. About half of the acreage is

wooded, and the rest is in pasture or cultivated. The plastic clay near the surface limits the use of these soils for cultivated crops.

Falkner silt loam, 0 to 2 percent slopes (FaA).—This somewhat poorly drained soil of the uplands is underlain by plastic clay. The major horizons are—

0 to 3 inches, gray, friable silt loam.
3 to 12 inches, light yellowish-brown, friable silt loam.
12 to 16 inches, mixed pale-brown, light yellowish-brown, and red silty clay loam.
16 to 37 inches, mottled light brownish-gray, firm clay with many, distinct mottles of brownish yellow.

The areas under cultivation have a yellowish-brown plow layer. The subsoil ranges from light gray to light yellowish brown in color and from 8 to 20 inches in thickness. The depth to plastic clay ranges from 16 to 26 inches.

The plastic clay in the lower part of the profile is slowly permeable. Runoff is slow, and there is little or no hazard of erosion. This soil is strongly acid, low to moderate in natural fertility, and low in content of organic matter. It can be tilled only within a fairly narrow range of moisture content, and it is often too wet or too dry for tillage, depending upon the season. Fairly good response is received when fertilizer is added. Because of the slow surface runoff and slow rate of infiltration, graded rows and W-type ditches are needed to remove excess surface water.

This soil is poorly suited to cultivated crops. It can be used for pasture and forest.

Capability unit IIIw–1; woodland suitability group 1; Loess Hills range site.

Falkner silt loam, 2 to 5 percent slopes (FaB).—The profile of this soil is similar to that of Falkner silt loam, 0 to 2 percent slopes. Runoff is medium, and the hazard of erosion is slight to moderate if cultivated crops are grown. About one-fourth of the acreage has been cultivated, and in those areas some erosion has occurred. The surface layer in the eroded areas is 1 to 2 inches thinner than that of Falkner silt loam, 0 to 2 percent slopes.

A limited number of row crops can be grown. Pasture and forest, however, are probably the best uses.

Capability unit IIIw–1; woodland suitability group 1; Loess Hills range site.

Guin Series

The Guin series consists of gravelly soils that are well drained to excessively drained. These soils developed in thick beds of unconsolidated, acid gravelly sandy loams and loamy sands.

The Guin soils occur with the Saffell, Eustis, and Ruston soils in areas that are gently sloping to steep. The upper part of their subsoil is more sandy than that of the Saffell soils. They have a much higher content of gravel than the Eustis and Ruston soils.

The native vegetation on the Guin soils is a mixed forest of pines and hardwoods. The understory consists of sparse stands of grass, winter blueberries, low shrubs, and vines.

These soils are droughty, and they have poor tilth. They are probably best suited to forest and wildlife, but some areas are used as a commercial source of gravel.

Guin gravelly sandy loam, 8 to 12 percent slopes (GgD).—This soil is well drained to excessively drained. The major horizons are—

0 to 4 inches, very dark grayish-brown gravelly sandy loam.
4 to 30 inches, gravel mixed with yellowish-brown sandy loam.
30 to 72 inches, gravel mixed with sandy clay loam.

Surface runoff in cultivated fields causes a moderate hazard of erosion. The greater part of the acreage has been cultivated, and some erosion has occurred. In eroded areas the surface layer is 1 to 2 inches thinner than in areas not eroded.

The rapid permeability, strong slope, and hazard of erosion limit the use of this soil, and the range of suitable crops is limited.

Capability unit VIs–2; woodland suitability group 6; Coastal Plain Hills (Sandy and Gravelly) range site.

Guin gravelly sandy loam, 12 to 40 percent slopes (GgF).—This soil is subject to erosion if it is cultivated. About one-third of the acreage has been cultivated, and in some areas moderate erosion has occurred. The surface layer is 2 to 3 inches thinner in some places than in areas where there has been no erosion. This soil is droughty. It is suited to forest, and to a limited extent, to pasture.

Capability unit VIIs–2; woodland suitability group 6; Coastal Plain Hills (Sandy and Gravelly) range site.

Guin and Saffell gravelly sandy loams, 2 to 8 percent slopes (GsC).—This undifferentiated soil group consists of well-drained to somewhat excessively drained soils on uplands of the Coastal Plain. The areas are small and are scattered throughout the county. Most of the acreage, where slopes are between 2 and 8 percent, is about two-thirds Guin gravelly sandy loam, and the rest is the Saffell soil. Where the slopes are more than 8 percent, the areas are mainly Guin soil.

These soils occur with the Eustis and Ruston soils. They are similar in drainage to the Eustis and Ruston soils, but, unlike those soils, they contain a large amount of gravel. A profile considered typical of a Guin soil is described under Guin gravelly sandy loam, 8 to 12 percent slopes. The major horizons in a Saffell gravelly sandy loam are—

0 to 8 inches, dark grayish-brown gravelly fine sandy loam.
8 to 26 inches, gravel mixed with yellowish-red and red loam or sandy clay loam.
26 to 40 inches +, gravel mixed with yellowish-red loamy coarse sand.

In areas that are cultivated, the plow layer is lighter colored than in areas that have not been disturbed. The content of gravel ranges from a few pebbles in the surface layer to as much as 80 percent, by volume, in the subsoil.

These soils are low in fertility and in content of organic matter. They are strongly acid.

The surface layer has poor to fair tilth. The rapid permeability, moderate slopes, and low available moisture capacity limit the use of these soils for crops. The soils are a good source of material for road construction, and such material has been taken from many of the areas. Most of the acreage is wooded, but a small acreage has been cultivated. Practically all of the acreage that has been cultivated is reverting to forest. The natural vegetation is mostly shortleaf pine, loblolly pine, and oak.

Capability unit IVs–2; woodland suitability group 6; Coastal Plain Hills (Sandy and Gravelly) range site.

Gullied Land (Gu)

Gullied land is a miscellaneous land type made up of very severely eroded soils. It is on uplands of the Coastal Plain and has slopes of 2 to 40 percent. In most places all of the surface layer has been lost through erosion and much of the subsoil is gone. There are some small areas or islands of soil, however, that have retained much of their surface layer. Most of these areas have been protected by grass, trees, or other cover. There are many small rills and deep gullies.

Most of the soils that make up this land type were once deep, well drained, and productive. Now, because of erosion, surface runoff has increased, the rate of infiltration is lower, and the available moisture capacity, fertility, and content of organic matter have decreased. This land type is suitable only for forest.

Capability unit VIIe–3; woodland suitability group 9; not placed in a range site.

Henry Series

The Henry series consists of level or nearly level soils that are poorly drained. These soils are on uplands that are covered by a thin layer of loess. They have a surface layer of gray to pale-brown, friable silt loam and a subsoil of light-gray, friable silt loam. The fragipan is about 10 to 26 inches beneath the surface. The soils of the Henry series are low in natural fertility and in content of organic matter. They are very strongly acid.

The Henry soils occur with Providence and Bude soils, but they are more nearly level and are more poorly drained than those soils. Also their surface layer and subsoil are less brownish than those of the Providence and Bude soils.

The Henry soils are in the northwestern part of the county. The natural vegetation is a forest of different kinds of hardwoods. Most of the acreage is wooded. The fragipan near the surface and the ponded surface water limit the use of these soils.

Henry silt loam (Hn).—This is the only Henry soil mapped in this county. It is poorly drained and is on uplands. The major horizons are—

0 to 6 inches, gray to light brownish-gray, friable silt loam.
6 to 13 inches, mottled light brownish-gray, friable silt loam.
13 to 20 inches, (fragipan) mottled light-gray to pale-brown, compact and brittle silt loam.
20 to 34 inches, (fragipan) mottled gray, compact and brittle silty clay loam.
34 to 61 inches, mottled gray, firm clay.

The fragipan is 10 to 26 inches beneath the surface. The texture in the upper part of the subsoil ranges from silt loam to light silty clay loam.

This soil is strongly acid, low in natural fertility, and low in content of organic matter. The surface layer is difficult to keep in good tilth, because the soil is generally either too wet or too dry for cultivation. The fragipan restricts the depth to which roots can penetrate and thereby greatly limits the moisture available for plants during dry seasons.

The water table is near or above the surface for long periods of time, and this also limits the use of the soil. Only a few kinds of crops can be grown. If proper drainage is provided and good management is used, this soil is fairly well suited to pasture. It is fairly well suited to forest.

Capability unit IVw–2; woodland suitability group 5; Loess Hills range site.

Iuka Series

The Iuka series consists of nearly level, moderately well drained soils on flood plains of the Coastal Plain. The surface layer is dark grayish-brown, friable silt loam, and the subsoil is yellowish-brown, friable silt loam or fine sandy loam. Mottled layers are 24 to 30 inches below the surface. The soils are low in fertility and in content of organic matter. They are very strongly acid to medium acid.

The Iuka soils occur with Ochlockonee, Mantachie, and Bibb soils. They are less well drained and less brownish than the Ochlockonee soils. They are better drained and less grayish than the Bibb and Mantachie soils.

The Iuka soils are in small to relatively large areas throughout the county. The natural vegetation is a forest of hardwoods with an understory of shrubs, vines, switchcane, and herbaceous plants. Much of the acreage is cultivated or in pasture.

A profile of an Iuka silt loam, considered typical for this series, is described under the Collins series in the mapping unit of Collins and Iuka soils.

Izagora Series

The Izagora series consists of nearly level, moderately well drained soils on stream terraces. These soils have a surface layer of dark grayish-brown fine sandy loam and a brown to strong-brown subsoil. Mottled, firm clay is 14 to 24 inches beneath the surface. These soils are low in fertility, low in content of organic matter, and strongly acid.

The Izagora soils occur with the Cahaba, Myatt, Tilden, Prentiss, and Stough soils. They are less well drained than the Cahaba soils, and they contain a mottled, clayey layer that is lacking in those soils. They are better drained than the Myatt soils, and their subsoil is brownish rather than grayish like that of the Myatt soils. The Izagora soils have drainage similar to that of the Tilden and Prentiss soils, but they lack the fragipan present in the Tilden, Prentiss, Stough, and Myatt soils.

The Izagora soils occupy small areas on the flood plains of the Leaf River. The natural vegetation is shortleaf pine, loblolly pine, oak, and hickory with an understory of shrubs, grasses, broomsedge, and switchcane. Most of the acreage is wooded. Plastic clay near the surface limits the suitability of these soils for crops.

Izagora fine sandy loam, 0 to 2 percent slopes (IzA).—This is the only Izagora soil mapped in the county. It is moderately well drained and is on stream terraces. The major horizons are—

0 to 8 inches, dark grayish-brown and brown, friable fine sandy loam.
8 to 18 inches, yellowish-brown and strong-brown loam or clay loam.
18 to 55 inches, mottled light brownish-gray and light-gray, firm clay.

In places cultivated areas have a light-gray plow layer. The subsoil ranges from pale brown to yellowish red in color. Depth to plastic clay ranges from 14 to 24 inches.

This soil is strongly acid, low in natural fertility, and low in content of organic matter. The amount of moisture available to plants is moderate.

The surface layer has good tilth, and this soil is well suited to cultivation. Crops grown on it respond well to fertilizer. Slow surface runoff, a moderately high water table, and occasional flooding are the chief hazards if cultivated crops are grown. Open ditches, graded rows, and diversions are needed to remove excess surface water. This soil is fairly well suited to irrigation, and it can be leveled. In places slight cuts are needed so that water can be spread more evenly.

Capability unit IIw–2; woodland suitability group 1; Coastal Plain Hills (Level to Gently Undulating) range site.

Leaf Series

The Leaf series consists of nearly level, poorly drained soils on stream terraces of the Coastal Plain. The soils have a surface layer of dark-gray, friable silt loam, and a subsoil of light yellowish-brown to gray, firm clay. Mottled clay is 12 to 16 inches beneath the surface. These soils are low in fertility, low in content of organic matter, and strongly acid.

The Leaf soils occur with the poorly drained Myatt soils, the somewhat poorly drained Stough soils, the moderately well drained Prentiss and Tilden soils, and the well drained Cahaba soils. They have a finer textured subsoil than any of these soils. Their subsoil is more grayish than that of the Cahaba, Prentiss, and Stough soils.

The Leaf soils occur throughout the county. The natural vegetation is a hardwood forest with an understory of shrubs and native grasses. Plastic clay near the surface limits the suitability of these soils for crops.

Leaf silt loam (lf).—This is the only Leaf soil mapped in the county. It is poorly drained and is on stream terraces that are flooded occasionally. The major horizons are—

0 to 10 inches, dark-gray or light-gray to light brownish-gray, friable silt loam.
10 to 18 inches, mottled light-gray sandy clay loam.
18 to 42 inches, light-gray, plastic clay to sandy clay with mottles of strong brown.

In places the layer of sandy clay loam, normally at a depth of 10 to 18 inches, is absent. Where this occurs, the surface layer directly overlies plastic clay.

Good tilth is somewhat difficult to maintain, and the soil can be cultivated only within a narrow range of moisture content. Slow surface runoff, a clayey layer near the surface, and occasional flooding limit the use of this soil and the range of suitable crops that can be grown. A system of W- and V-type ditches, graded rows, and diversions are necessary to protect this soil from runoff from the adjacent slopes and to remove local surface water. If this soil is drained and protected from flooding, it is fairly well suited to a limited number of row crops. It is also suited to pasture and forest.

Capability unit IVw–2; woodland suitability group 5; Coastal Plain Hills (Wetlands) range site.

Mantachie Series

The Mantachie series consists of nearly level, somewhat poorly drained soils on flood plains of the Coastal Plain. These soils have a surface layer of dark-gray, friable silt loam and a pale-brown to brownish-gray subsoil. Mottling is at a depth of 6 to 18 inches. There is a seasonally high water table that rises to about 12 inches beneath the surface. These soils are low in fertility, low in content of organic matter, and strongly acid to medium acid.

The Mantachie soils occur with the Ochlockonee, Iuka, and Bibb soils. They are more poorly drained than the Ochlockonee and Iuka soils, and their subsoil is less brown. They are less grayish and better drained than the Bibb soils.

The Mantachie soils occur with the Falaya soils in fairly large areas throughout the county. The natural vegetation is a hardwood forest with an understory of shrubs, vines, native grasses, and herbaceous plants.

Mantachie and Falaya soils (Mf).—In this undifferentiated soil group are the only Mantachie and Falaya soils mapped in the county. These soils are somewhat poorly drained. The Mantachie soils make up about 70 percent of the acreage. The rest of the acreage consists mainly of Falaya soils, but in places small areas of Bibb, Waverly, Collins, and Iuka soils are included.

The surface layer is predominantly silt loam. The soils have good tilth, but they tend to pack if they are cultivated. If they are drained properly, these soils are well suited to row crops. Overflow is the principal hazard. V- and W-type ditches, diversions, and graded rows are effective for removing local surface water. These soils are suited to irrigation. They can be leveled to spread water more evenly and to improve surface drainage.

The major horizons in a Mantachie silt loam are—

0 to 7 inches, dark-gray to grayish-brown, friable silt loam stratified with light brownish-gray fine sandy loam.
7 to 33 inches, light brownish-gray to dark-gray, friable silt loam with mottles of strong brown.
33 to 60 inches, pale-brown to light brownish-gray silt loam with many brown mottles and small black concretions.

The major horizons in a Falaya silt loam are—

0 to 7 inches, brown to dark grayish-brown, friable silt loam.
7 to 26 inches, yellowish-brown, friable silt loam with light brownish-gray and gray mottles.
26 to 54 inches, light brownish-gray heavy silt loam; many, medium, distinct, dark-brown and strong-brown mottles.

The soils in this undifferentiated group are medium acid to strongly acid, moderate in natural fertility, and low in content of organic matter. Their surface layer is fairly easy to keep in good tilth, but it tends to crust and pack when bare. Water moves into and through the profile at a moderate rate, and the available moisture capacity is moderate to high.

Capability unit IIw–3; woodland suitability group 11; Alluvial Land range site.

Myatt Series

The Myatt series consists of nearly level, poorly drained soils on stream terraces of the Coastal Plain. The soils have a gray surface layer and a subsoil of light-gray to gray silt loam to silty clay loam. A mottled fragipan is 14 to 17 inches below the surface. These soils are low in

natural fertility, low in content of organic matter, and strongly acid.

The Myatt soils occur with the Leaf, Stough, Izagora, Prentiss, Tilden, and Cahaba soils. They are more poorly drained than most of those soils, but they have drainage similar to that of the Leaf soils. They have a more grayish and a less brownish subsoil than the Stough, Prentiss, and Tilden soils. Their subsoil is coarser textured than that of the Leaf soils, and it is gray rather than strong brown or yellowish red like that of the Cahaba soils.

The Myatt soils occur throughout the county. The natural vegetation is a hardwood forest with an understory of shrubs. About 65 percent of the acreage is wooded, and about 35 percent is cultivated or in pasture. Slow surface runoff and poor internal drainage limit the use of these soils for row crops.

Myatt silt loam (My).—This is the only Myatt soil mapped in the county. It is poorly drained and is on flood plains. The major horizons are—

0 to 6 inches, gray, friable silt loam.
6 to 17 inches, mottled light-gray, friable silt loam to silty clay loam.
17 to 35 inches, (fragipan) mottled light brownish-gray, compact, brittle silty clay loam.
35 to 50 inches, gray, mottled, firm silty clay.

In some places the surface layer is fine sandy loam. There are a few areas of overwash, and in these the surface layer is brown or yellowish-brown silt loam or fine sandy loam, 6 to 18 inches thick. In some places the mottles are lacking in the layer between 6 and 17 inches.

This soil is strongly acid. It is low in natural fertility and in content of organic matter. The surface layer is difficult to keep in good tilth, because much of the time the soil is either too wet or too dry for cultivation. The fragipan restricts the depth to which roots can penetrate and thereby greatly limits the moisture available to plants during dry seasons.

Slow surface runoff, poor internal drainage, a perched water table, and occasional flooding are hazards if this soil is cultivated. A system of V- and W-type ditches, graded rows, and diversions is effective, wherever such practices are needed, in removing excess surface water. Because the fragipan is near the surface, only shallow cuts can be made for land leveling.

Capability unit IVw–2; woodland suitability group 5; Coastal Plain Hills (Wetlands) range site.

Ochlockonee Series

The Ochlockonee series consists of nearly level, well-drained soils on flood plains of the Coastal Plain. The soils have a surface layer of brown to dark-brown, friable silt loam or fine sandy loam and a subsoil of light yellowish-brown to strong-brown, friable silt loam or fine sandy loam. These soils potentially are productive, but they are low in fertility and in content of organic matter. They are also strongly acid.

The Ochlockonee soils occur with Iuka, Mantachie, and Bibb soils. They are better drained and more brownish than those soils.

The Ochlockonee soils occur throughout the county. About 40 percent of the acreage is wooded, and 60 percent is cultivated or in pasture. The natural vegetation is a hardwood forest with an understory of shrubs, switchcane, vines, and herbaceous plants. Occasional flooding is a moderate hazard to cultivated crops.

Ochlockonee fine sandy loam (Oc).—This is a well-drained soil of first bottoms. The major horizons are—

0 to 10 inches, dark-brown and yellowish-brown, friable fine sandy loam.
10 to 50 inches, yellowish-brown to strong-brown fine sandy loam.

Cultivated areas of this soil have a light grayish-brown or yellowish-brown surface layer. The surface layer ranges from 6 to 10 inches in thickness. The color of the subsoil ranges from strong brown to yellowish brown.

This soil is moderate in natural fertility and low in content of organic matter. It has a thick root zone and is in good tilth. Water moves into and through this soil at a moderate rate, and the available moisture capacity is moderate.

This is one of the most productive soils in the county, and it is well suited to a number of kinds of plants. It is easy to work and can be cultivated over a wide range of moisture content. Overflow is the chief hazard where cultivated crops are grown. A system of V- and W-type ditches, graded rows, and diversions is useful in controlling excess surface water.

This soil is well suited to irrigation. It can be leveled to make drainage and cultivation easier.

Capability unit IIw–1; woodland suitability group 8; Alluvial Land range site.

Ochlockonee soils, local alluvium (Oh).—These soils have a profile similar to that of Ochlockonee fine sandy loam. They are mainly on the flood plains of small streams and drainageways and in small areas on the flood plains of larger streams. The surface layer is very dark brown to yellowish-red silt loam to sandy loam. It consists of recent alluvium that is 6 to 20 inches thick and overlies older material.

Overflow is the greatest hazard where these soils are cultivated. Diversions are needed to direct water from adjacent slopes away from these soils. V- and W-type ditches and graded rows effectively remove local surface water. The soils are well suited to many different crops, including cultivated crops. They are also well suited to irrigation and can be leveled so that water can be spread more evenly.

Capability unit IIw–1; woodland suitability group 8; Alluvial Land range site.

Ochlockonee, Mantachie, and Iuka soils (Om).—These soils are mapped as an undifferentiated group consisting of well-drained Ochlockonee soils, somewhat poorly drained Mantachie soils, and moderately well drained Iuka soils. Ochlockonee soils comprise 36 percent of the acreage; Mantachie soils, 36 percent; and Iuka soils, 23 percent. Also small amounts of Bibb and Waverly soils are included.

A profile considered typical of an Ochlockonee fine sandy loam is described under Ochlockonee fine sandy loam. A profile considered typical of a Mantachie silt loam is described in the Mantachie series under Mantachie and Falaya soils, and a profile considered typical of an Iuka silt loam is described in the Collins series under Collins and Iuka soils.

These soils are moderate in natural fertility and are strongly acid. They are well drained to somewhat poorly drained, and they have a thick to moderately thick root

zone. Water moves into and through the profile at a moderate rate, and the available moisture capacity is moderate. These soils are subject to severe flooding. Most of the acreage is wooded, but some areas have been used for row crops and pasture.

Capability unit Vw–1; woodland suitability group 8; Alluvial Land range site.

Ora Series

The Ora series consists of nearly level to strongly sloping, moderately well drained soils on uplands of the Coastal Plain. Where they are not eroded, these soils have a surface layer of dark grayish-brown to grayish-brown friable fine sandy loam or silt loam and a subsoil of yellowish-brown to yellowish-red loam to silty clay loam. A fragipan is about 25 inches beneath the surface. These soils are low in fertility and in content of organic matter. They are very strongly acid to strongly acid.

The Ora soils occur with the Savannah and Pheba soils. On slopes adjacent to the Ora soils are the Ruston soils. The Ora soils resemble the Tilden soils, but they are on uplands rather than on stream terraces. Their subsoil is more reddish than that of the Savannah soils, and they are more reddish and better drained than the Pheba soils.

The Ora soils occupy fairly large areas throughout the county. They are mainly in cultivated crops or pasture, but some of the acreage is in forest. The natural vegetation is shortleaf and loblolly pines mixed with hardwoods. The understory is shrubs, vines, and native grasses. Ora soils are suited to a number of kinds of row crops and pasture plants.

Ora fine sandy loam, 0 to 2 percent slopes (OrA).—This soil is nearly level and is moderately well drained. It is on the uplands. The major horizons are—

0 to 7 inches, dark grayish-brown, friable fine sandy loam.
7 to 20 inches, yellowish-red, friable loam to clay loam.
20 to 25 inches, yellowish-brown, friable clay loam.
25 to 48 inches, (fragipan) mottled yellowish-brown, brittle and compact sandy loam.
48 to 80 inches, white sandy loam mottled with red and light red.

Some areas that have been cultivated have a yellowish-brown plow layer. The subsoil ranges from strong-brown or yellowish-red loam to clay loam.

This soil is strongly acid, low in natural fertility, and low in content of organic matter. The surface layer is easily kept in good tilth and can be cultivated over a wide range of moisture content. The fragipan restricts the depth to which roots can penetrate, and it thereby limits the moisture available to plants. Crops grown on this soil respond well to fertilizer. If good management is used, this soil is well suited to a fairly wide range of cultivated crops, and it is well suited to pasture and forest. V- and W-type ditches and graded rows are needed on larger areas to remove local surface water. This soil is well suited to irrigation, and moderate cuts can be made where land leveling is necessary.

Capability unit IIw–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Ora fine sandy loam, 2 to 5 percent slopes (OrB).—Surface runoff is greater on this soil than on Ora fine sandy loam, 0 to 2 percent slopes, and the hazard of erosion is slight to moderate. Graded rows and terraces are useful in reducing the velocity of runoff. These soils are suited to a number of different crops and pasture plants.

Capability unit IIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Ora fine sandy loam, 2 to 5 percent slopes, eroded (OrB2).—The surface layer of this soil is generally 1 to 3 inches thinner than that of Ora fine sandy loam, 2 to 5 percent slopes. Small areas are severely eroded, and in those areas the strong-brown or yellowish-red subsoil is exposed. This soil has a slow rate of infiltration and poor tilth. All of it has been cultivated, but a small acreage has reverted to pine forest. The soil is suited to a fairly wide range of cultivated crops, and it is well suited to pasture and pine forest.

Capability unit IIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Ora fine sandy loam, 5 to 8 percent slopes (OrC).—In cultivated fields surface runoff is fairly rapid on this soil, and there is a moderate hazard of erosion. If good management is used, this soil is suited to a fairly wide range of cultivated crops, and it is well suited to pasture and pine forest. Most of the acreage is in forest.

Capability unit IIIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Ora fine sandy loam, 5 to 8 percent slopes, eroded (OrC2).—The surface layer of this soil is 3 to 5 inches thinner in most areas than that of Ora fine sandy loam, 0 to 2 percent slopes. This soil also has a slower rate of infiltration and poorer tilth. In small, severely eroded areas, patches of the strong-brown or yellowish-red subsoil are exposed. All of this soil has been cultivated, but a small acreage has reverted to forest.

Capability unit IIIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Ora fine sandy loam, 5 to 8 percent slopes, severely eroded (OrC3).—This soil is distinguished from Ora fine sandy loam, 0 to 2 percent slopes, by stronger slopes and severe erosion. The plow layer is a mixture of surface soil and subsoil. In some areas patches of strong-brown or yellowish-red subsoil are exposed. Surface runoff is rapid, the rate of infiltration is slow, and tilth is poor. There are rills and shallow gullies in some places. This soil has been cultivated, but some of the acreage has reverted to pine forest.

Capability unit IVe–2; woodland suitability group 2; Coastal Plain Hills (Steep) range site.

Ora fine sandy loam, 8 to 12 percent slopes (OrD).—The surface layer of this soil is 1 to 2 inches thinner in most places than that of Ora fine sandy loam, 0 to 2 percent slopes. If the soil is cultivated, surface runoff is medium and the hazard of erosion is moderate. Most of the acreage is wooded, but small areas are cultivated or in pasture. Because of the strong slope, row crops should not be grown year after year, but this soil is suited to perennial plants.

Capability unit IVe–2; woodland suitability group 2; Coastal Plain Hills (Steep) range site.

Ora fine sandy loam, 8 to 12 percent slopes, eroded (OrD2).—The surface layer of this soil is 3 to 5 inches thinner than that of Ora fine sandy loam, 0 to 2 percent slopes. The rate of infiltration is slower, surface runoff is greater, and the hazard of further erosion is greater. Some small areas are severely eroded. In those places the plow layer is partly within the subsoil, and patches of strong-brown or yellowish-red subsoil are exposed. All of this soil has been cultivated, but some of the acreage has reverted to pine forest. This soil is used chiefly for pasture.

Capability unit IVe–2; woodland suitability group 2; Coastal Plain Hills (Steep) range site.

Ora silt loam, heavy substratum, 2 to 5 percent slopes (OsB).—This soil is gently sloping and moderately well drained. It is on uplands. The major horizons are—

0 to 6 inches, dark-brown to yellowish-red, friable silt loam.
6 to 29 inches, yellowish-red, firm silty clay loam.
29 to 53 inches, (fragipan) mottled red, compact, brittle loam.
53 to 72 inches, dusky-red, firm silty clay.

Areas that are cultivated have a yellowish-brown plow layer. Where the surface layer is not eroded, it is dark-brown, friable silt loam that is 5 to 7 inches thick. The subsoil is strong-brown to yellowish-red silt loam or silty clay loam. A mottled fragipan is 24 to 32 inches beneath the surface. Below the fragipan are layers of dark-red to dusky-red clay loam, silty clay, or sandy clay.

This soil is very strongly acid, low in fertility, and low in content of organic matter. Surface runoff is slow, and there is a slight hazard of erosion. The surface layer has fairly good tilth, but it tends to pack when bare.

This soil has a higher proportion of silt in the profile than the Ora fine sandy loams. The fragipan is generally weaker than that of Ora fine sandy loam, 0 to 2 percent slopes. The color of the substratum is also more reddish, and the lower part of the subsoil is finer textured. This soil occurs with the Providence and Bude soils.

This soil is mainly in the northwestern part of the county. If good management is used, it is well suited to cultivation. Most of the acreage is cultivated or in pasture.

Capability unit IIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Ora silt loam, heavy substratum, 2 to 5 percent slopes, eroded (OsB2).—The surface layer of this soil is 3 to 5 inches thinner than that of Ora silt loam, heavy substratum, 2 to 5 percent slopes. All of the acreage has been cultivated or used for pasture, but some small areas have reverted to pine forest.

Capability unit IIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Ora silt loam, heavy substratum, 5 to 8 percent slopes, eroded (OsC2).—In areas that have been cleared, the surface layer of this soil is 2 to 5 inches thinner than that of Ora silt loam, heavy substratum, 2 to 5 percent slopes. In wooded areas, however, the surface layer is similar in thickness. In severely eroded areas patches of strong-brown to yellowish-red subsoil are exposed. Most of the acreage is cultivated or in pasture.

Capability unit IIIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Pheba Series

The Pheba series consists of nearly level to gently sloping, somewhat poorly drained soils on uplands of the Coastal Plain. The soils have a light-gray to grayish-brown surface layer and a subsoil of yellowish-brown loam to silty clay loam. A fragipan is 16 to 20 inches beneath the surface. These soils are strongly acid, low in fertility, and low in content of organic matter.

The Pheba soils occur with the Savannah and Ora soils. They are more poorly drained than those soils, and in many places they are less sloping. The subsoil of the Pheba soils is yellowish brown like that of the Savannah soils, but it is less reddish than that of the Ora soils.

The Pheba soils are mainly in the western and southern parts of the county. The natural vegetation is shortleaf pine, loblolly pine, and hardwood forest with an understory of shrubs and native grasses. Most of the acreage is in pasture, but a small part is in row crops, and the rest is in forest. These soils are best suited to pasture and forest.

Pheba loam, 0 to 2 percent slopes (PhA).—This somewhat poorly drained soil is on uplands. The major horizons are—

0 to 5 inches, grayish-brown, friable loam.
5 to 9 inches, yellowish-brown, friable silt loam.
9 to 17 inches, yellowish-brown, friable loam to silty clay loam.
17 to 37 inches, (fragipan) mottled gray to yellowish-brown, compact, brittle loam.
37 to 60 inches, mottled light brownish-gray, strong-brown, and yellowish-brown, friable loam.

In places the surface layer is silt loam or fine sandy loam. The texture at a depth between 32 and 56 inches ranges from sandy loam to loam.

This soil is strongly acid, low in natural fertility, and low in content of organic matter. There is little or no hazard of erosion. The soil can be tilled within a fairly wide range of moisture content, but it tends to crust and clod when bare. The fragipan restricts the depth to which roots can penetrate and limits the amount of moisture available to plants during dry seasons. Because of the slow surface runoff and slow rate of infiltration, graded rows and V- and W-type ditches are necessary to remove the excess surface water where this soil is cultivated. If good management is used, this soil is fairly well suited to cultivation.

Capability unit IIIw–1; woodland suitability group 7; Coastal Plain Hills (Wetlands) range site.

Pheba loam, 2 to 5 percent slopes (PhB).—The profile of this soil is similar to that of Pheba loam, 0 to 2 percent slopes. Because of the stronger slopes, however, surface runoff is medium in cultivated fields and there is a slight hazard of erosion. Most of the acreage is cultivated or in pasture. A small part of the acreage has reverted to pine forest.

Capability unit IIIw–1; woodland suitability group 7; Coastal Plain Hills (Wetlands) range site.

Prentiss Series

The Prentiss series consists of nearly level to gently sloping, moderately well drained soils on stream terraces of the Coastal Plain. The soils have a surface layer of dark-gray to dark-brown fine sandy loam and a subsoil

of yellowish-brown sandy loam to clay loam. A mottled yellowish-brown fragipan is 18 to 30 inches below the surface.

The Prentiss soils occur with the Cahaba, Tilden, Stough, Myatt, and Leaf soils. Their subsoil is less reddish than that of the Cahaba and Tilden soils, and they have a fragipan and are less well drained than the Cahaba soils. They are better drained than the Stough soils, and their fragipan is generally at a greater depth. The Prentiss soils are better drained and less grayish than the Myatt and Leaf soils.

The Prentiss soils are in small areas throughout the county. Most of the acreage is used for crops or pasture, but some of it is wooded. The natural vegetation is shortleaf pine, loblolly pine, and oak forest with an understory of shrubs and native grasses. These soils are well suited to cultivated crops and pasture.

Prentiss fine sandy loam, 0 to 2 percent slopes (PnA).—This nearly level soil is on stream terraces. The major horizons are—

0 to 7 inches, dark-gray to brown, friable fine sandy loam.
7 to 23 inches, yellowish-brown to brownish-yellow, friable silt loam.
23 to 37 inches, (fragipan) yellowish-brown to light yellowish-brown, compact, brittle loam to silty clay loam.
37 to 55 inches, light-gray, strong-brown, and yellowish-red, friable fine sandy loam.

Depth to the fragipan ranges from 18 to 30 inches. In most places the fragipan is at a depth of about 24 to 26 inches.

This soil is strongly acid, moderate to low in natural fertility, and low in content of organic matter. The surface layer is easily kept in good tilth. The fragipan restricts the depth to which roots can penetrate and limits the amount of moisture available to plants. Crops grown on this soil respond well to fertilizer. Because surface runoff is slow during wet periods, graded rows and W-type ditches are needed to remove excess surface water. This soil is well suited to a number of kinds of plants.

Capability unit IIw–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Prentiss fine sandy loam, 2 to 5 percent slopes (PnB).—Where this soil is cultivated, surface runoff is medium and the hazard of erosion is slight to moderate. A small part of the acreage is moderately eroded. In those places the surface layer is about 3 inches thinner than that of Prentiss fine sandy loam, 0 to 2 percent slopes. This soil is suited to most of the cultivated crops commonly grown in the county. About 90 percent of the acreage is cultivated or in pasture.

Capability unit IIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Providence Series

The Providence series consists of nearly level to gently sloping, moderately well drained soils on uplands. The soils are covered by a thin layer of loess. They have a surface layer of light brownish-gray to grayish-brown, friable silt loam and a subsoil of yellowish-brown to strong-brown silty clay loam. A fragipan of mottled yellowish-brown, yellow, and gray silt loam or silty clay loam is 18 to 30 inches beneath the surface. These soils are low in fertility, low in content of organic matter, and strongly acid.

The Providence soils occur with the Falkner, Henry, and Bude soils, which are all nearly level or gently sloping. They are better drained than any of those soils, and they are much less grayish than the Falkner and Henry soils. Unlike the Falkner soils, which have plastic clay at a depth of 16 inches, the Providence soils contain a fragipan. Their fragipan is at a greater depth than that in the Bude soils.

The Providence soils are in the northwestern part of the county. The natural vegetation is hardwoods mixed with pines and an understory of shrubs and native grasses. Most of the acreage is cultivated or in pasture. Small areas that have been cultivated have reverted to pine forest. These soils are suited to a number of kinds of row crops and pasture plants.

Providence silt loam, 0 to 2 percent slopes (PrA).—This moderately well drained soil formed in a thin layer of loess over Coastal Plain material. The major horizons are—

0 to 6 inches, dark-brown or light brownish-gray to yellowish-brown, friable silt loam.
6 to 22 inches, yellowish-brown to brownish-yellow silt loam to silty clay loam.
22 to 30 inches, (fragipan) yellowish-brown, compact, brittle silty clay loam.
30 to 60 inches, yellowish-brown, gray, and light-gray, firm silty clay loam.

Areas that have been cultivated have a grayish-brown plow layer. The color of the subsoil ranges from yellowish brown to strong brown.

This soil is strongly acid, low to moderate in natural fertility, and low in content of organic matter. The surface layer is fairly easy to keep in good tilth, but it tends to crust and pack when bare. The fragipan restricts the depth to which roots can penetrate and limits the amount of moisture available to plants. Because of the slow rate of infiltration and slow surface runoff, graded rows and W-type ditches are generally needed to remove excess surface water during wet periods. This soil is suited to cultivated crops, pasture, and forest.

Capability unit IIw–2; woodland suitability group 2; Loess Hills range site.

Providence silt loam, 2 to 5 percent slopes (PrB).—This soil has better surface drainage than Providence silt loam, 0 to 2 percent slopes, but there is a slight to moderate hazard of erosion if cultivated crops are grown. Graded rows and terraces are needed to reduce the velocity of water on long, uniform slopes. This soil is suited to a number of kinds of row crops and pasture plants. Most of the acreage is cultivated or in pasture, but some small areas are wooded. Some of the acreage has reverted to pine forest.

Capability unit IIe–2; woodland suitability group 2; Loess Hills range site.

Providence silt loam, 2 to 5 percent slopes, eroded (PrB2).—The surface layer of this soil is 2 to 5 inches thinner than that of Providence silt loam, 0 to 2 percent slopes. In some areas there are small, severely eroded patches and in these the finer textured subsoil is exposed. The rate of infiltration is slower and tilth is poorer than in the less sloping soil. Graded rows and terraces are needed to reduce the velocity of water on long, uniform slopes.

This soil is suited to a number of kinds of crops. All of it has been cultivated, but part of the acreage has reverted to pine forest.

Capability unit IIe–2; woodland suitability group 2; Loess Hills range site.

Providence silt loam, 5 to 8 percent slopes (PrC).—The surface layer of this soil is 1 to 2 inches thinner than that of Providence silt loam, 0 to 2 percent slopes. In areas where cultivated crops are grown, runoff is medium and the hazard of erosion is moderate. Careful management is required to control erosion in those areas.

This soil is suited to a number of kinds of crops. About half of the acreage is wooded, and the rest is cultivated or in pasture. A small part of the acreage that has been cultivated has reverted to pine forest.

Capability unit IIIe–2; woodland suitability group 2; Loess Hills range site.

Ruston Series

The Ruston series consists of deep, well-drained soils on uplands and broad ridges. These soils formed in sandy loam, loam, and sandy clay loam of the Coastal Plain. They have a surface layer of very dark grayish-brown fine sandy loam. The upper part of their subsoil is yellowish-red loam or sandy clay loam, and the lower part is yellowish-red to strong-brown sandy loam.

These soils are low in fertility, low in content of organic matter, and strongly acid. Infiltration is moderate, permeability is moderate to rapid, and the available moisture capacity is moderate.

The Ruston soils occur with the Ora, Savannah, and Eustis soils. They are better drained than the Ora and Savannah soils, and they lack the fragipan that is typical of those soils. The Ruston soils are similar to the Eustis soils in color, but they are finer textured.

The Ruston are the most extensive soils in this county. They occur throughout the county.

The natural vegetation is longleaf pine and such upland hardwoods as blackjack oak, hickory, and dogwood. These soils are suited to a number of kinds of crops.

Ruston fine sandy loam, 2 to 5 percent slopes (RsB).—This well-drained soil is on uplands. The major horizons are—

0 to 12 inches, very dark grayish-brown, friable sandy loam to yellowish-brown, friable loam.
12 to 28 inches, red or yellowish-red, friable loam or clay loam.
28 to 70 inches, yellowish-red to strong-brown sandy loam.

The color of the surface layer ranges from very dark gray to very dark grayish brown. In areas that are cultivated, the plow layer is brown to dark grayish-brown fine sandy loam or sandy loam. The color in the upper part of the subsoil ranges from strong brown to red, and the texture ranges from loam to heavy sandy loam, clay loam, or sandy clay loam. The lower part of the subsoil is generally red loam to loamy sand.

This soil is low in content of organic matter and is strongly acid. The surface layer is easily kept in good tilth. Water moves into and through the profile at a moderate rate. The available moisture capacity is generally adequate for most plants, but during dry seasons, this soil may be droughty. Response to fertilizer is good. If this soil is cultivated, there is only a moderate hazard of erosion. Graded rows and terraces are needed to reduce the velocity of surface runoff on long, uniform slopes. Small areas of Eustis and Ora soils are mapped with this soil.

Capability unit IIe–1; woodland suitability group 4; Coastal Plain Hills (Level to Gently Undulating) range site.

Ruston fine sandy loam, 0 to 2 percent slopes (RsA).—This deep, well-drained soil is generally on broad ridgetops. Where this soil has been cultivated, the surface layer is brown fine sandy loam that is 8 to 12 inches thick. The upper part of the subsoil is strong-brown to yellowish-red sandy clay loam or heavy loam to a depth of about 30 inches. The lower part is red sandy loam or loam.

The surface layer of this soil is easily kept in good tilth and can be worked over a wide range of moisture content. The available moisture capacity is adequate. This soil is well suited to the crops commonly grown in the area, and good response is obtained where fertilizer is applied. Small areas of Ora and Eustis soils are mapped with this soil.

Capability unit I–1; woodland suitability group 4; Coastal Plain Hills (Level to Gently Undulating) range site.

Ruston fine sandy loam, 2 to 5 percent slopes, eroded (RsB2).—This soil is well drained and is on uplands. Its surface layer is grayish-brown or brown fine sandy loam that is about 5 inches thick. The subsoil is yellowish-red clay loam or loam to a depth of about 30 inches, and below is red loam or sandy loam. In areas that have been cultivated, patches of the red subsoil are exposed. In some fields there are small rills or gullies.

Water moves into the surface layer at a moderate rate and through the subsoil at a moderate to rapid rate. The available moisture capacity is generally adequate for most crops. Where this soil is cultivated, there is a moderate hazard of further erosion. Graded rows and terraces are needed to reduce the velocity of surface runoff on long, uniform slopes. Much of the acreage is used for crops and pasture, but a large acreage has reverted to pine forest. Small areas of Ora and Eustis soils are mapped with this soil.

Capability unit IIe–1; woodland suitability group 4; Coastal Plain Hills (Level to Gently Undulating) range site.

Ruston fine sandy loam, 5 to 8 percent slopes (RsC).—This is a well-drained soil of the uplands. It has a surface layer of brown fine sandy loam that is 8 to 12 inches thick. The subsoil is yellowish-red to red loam or sandy clay loam to a depth of about 30 inches. The lower part of the subsoil is red clay loam or loam that is several feet thick.

Water moves into the surface layer at a moderate rate and through the subsoil at a moderate to rapid rate. The available moisture capacity is generally adequate for crops. This soil can be worked over a wide range of moisture content. Where row crops are grown, there is a moderate to severe hazard of erosion. Graded rows and terraces are needed to reduce runoff on long, uniform slopes.

This soil is suited to pasture and to the field crops commonly grown in this county, but fertilizer is needed for pasture and row crops. Much of the acreage is wooded.

Included in mapping are small areas of Ora and Eustis soils.

Capability unit IIIe–1; woodland suitability group 4; Coastal Plain Hills (Level to Gently Undulating) range site.

Ruston fine sandy loam, 5 to 8 percent slopes, eroded (RsC2).—This is a well-drained soil of the uplands. It has a surface layer of brown fine sandy loam that is about 5 to 6 inches thick. In areas that have been plowed, patches of the reddish subsoil are exposed. The subsoil is yellowish-red to red loam or clay loam to a depth of about 30 inches, and below is red sandy loam or loam. In some fields there are small rills and gullies.

Water moves into the surface layer at a moderate rate and through the subsoil at a moderate to rapid rate. The available moisture capacity is generally moderate. This soil can be worked over a wide range of moisture content. Where this soil is cultivated, there is a moderate hazard of further erosion. Graded rows and terraces are needed to reduce the velocity of runoff on long uniform slopes.

Part of this soil is used for row crops or pasture, but fertilizer is needed where those crops are grown. Some of the acreage is in timber, and part is idle. Small areas of Ora and Eustis soils are included in the mapping.

Capability unit IIIe–1; woodland suitability group 4; Coastal Plain Hills (Level to Gently Undulating) range site.

Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded (RsC3).—This is a well-drained, severely eroded soil of the uplands. Its present surface layer is strong-brown to yellowish-red heavy loam, and it consists of a mixture of subsoil and of the remaining original surface layer. In areas that have been plowed, the surface layer is generally red, but there are occasional brown patches where the original surface layer remains. The subsoil is yellowish-red to red loam or sandy loam to a depth of about 30 inches, and below is red sandy loam or loam. In some fields there are small rills and gullies.

Water moves into the surface layer at a moderate rate and through the subsoil at a moderate to rapid rate. The available moisture capacity is generally adequate for crops. If this soil is used for row crops, there is a severe hazard of further erosion. Fertilizer is needed where row crops are grown. Most of the acreage has been cultivated, but a small acreage has reverted to pine. Included in mapping are small areas of Ora and Faceville soils. The Faceville soils are not mapped separately in this county.

Capability unit IVe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Ruston fine sandy loam, 8 to 12 percent slopes (RsD).—This well-drained soil of the uplands has a surface layer of dark grayish-brown or brown fine sandy loam that is 8 to 12 inches thick. The subsoil is yellowish-red to red loam or clay loam to a depth of about 30 inches, and below is red sandy loam to loam.

The available moisture capacity is generally adequate for plants. During dry seasons, however, this soil is droughty. Because of the strong slopes, there is a serious hazard of erosion. This soil is suited to row crops and pasture, but it is better suited to timber. Fertilizer is needed if row crops are grown. Included in the mapping are small areas of Eustis and Cuthbert soils.

Capability unit IVe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Ruston fine sandy loam, 8 to 12 percent slopes, eroded (RsD2).—This well-drained soil of the uplands has a surface layer of brown fine sandy loam that is generally about 5 inches thick. In places, however, the yellowish-red subsoil is exposed. The subsoil is yellowish-red to red loam or clay loam to a depth of about 2 feet, and below is red sandy loam or loam. In some fields there are small rills and gullies.

The available moisture capacity is generally adequate for plants. During dry periods, however, this soil is droughty. Runoff is rapid, and there is a severe hazard of further erosion if row crops are grown. This soil is used chiefly for field crops and pasture, but a small acreage has reverted to pine forest or is idle. Included in mapping are small areas of Eustis and Cuthbert soils.

Capability unit IVe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded (RsD3).—In areas that have not been cultivated, this well-drained soil of the uplands has a surface layer of strong-brown to yellowish-red fine sandy loam or heavy loam. In plowed fields this soil is generally red, but there are brown patches where the original surface layer remains. The subsoil is a yellowish-red to red loam or clay loam. In some fields there are rills and gullies.

Water moves into the surface layer at a moderate rate and through the subsoil at a slow to moderate rate. Runoff is rapid, but the available moisture capacity is generally adequate for plants. This soil has been used for row crops, but it is now largely in pine forest. Included in mapping are small areas of a Eustis soil.

Capability unit VIe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Ruston fine sandy loam, 12 to 17 percent slopes (RsE).—This is a well-drained soil of the uplands. The surface layer is brown fine sandy loam that is 12 to 14 inches thick. The subsoil is yellowish-red to red loam or heavy sandy loam to a depth of about 24 inches, and below is red sandy loam.

The available moisture capacity is generally adequate for crops, but because the slopes are steep, there is a severe hazard of erosion. This soil is used chiefly for timber, but a small acreage is in pasture. Included in mapping are small areas of Eustis and Cuthbert soils.

Capability unit VIe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Ruston fine sandy loam, 12 to 17 percent slopes, eroded (RsE2).—This well-drained soil of the uplands has a surface layer of brown fine sandy loam that is about 6 inches thick. The subsoil is yellowish-red to red loam to heavy sandy loam to a depth of about 2 feet, and below is red sandy loam. In places the yellowish-red subsoil is exposed.

The available moisture capacity is generally adequate for plants. This soil was formerly cultivated. Now it is chiefly in pasture, but a small acreage has reverted to pine forest. Included in mapping are small areas of Eustis and Cuthbert soils.

Capability unit VIe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Ruston fine sandy loam, 12 to 17 percent slopes, severely eroded (RsE3).—This is a well-drained, severely eroded soil of the uplands. Its present surface layer is brown to yellowish-red fine sandy loam that consists of a mixture of subsoil and the remaining original surface layer. The subsoil is yellowish-red to red loam to heavy sandy loam to a depth of about 2 feet, and below is red sandy loam or loamy sand.

The available moisture capacity is moderate. Cultivation and overgrazing have caused severe erosion. Most of the acreage is wooded or in pasture. Included in mapping are small areas where the surface layer is mainly loam or heavy sandy loam. Also included are small areas of Eustis loamy sand.

Capability unit VIIe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Ruston fine sandy loam, 17 to 40 percent slopes (RsF).—This well-drained soil of the uplands has a surface layer of brown fine sandy loam that is about 15 inches thick. The upper part of the subsoil is yellowish-red to red heavy sandy loam or loam, and below is red sandy loam. This soil is used for growing timber. Included in mapping are small areas of Eustis and Cuthbert soils.

Capability unit VIIe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Ruston fine sandy loam, 17 to 40 percent slopes, eroded (RsF2).—This well-drained soil of the uplands has a surface layer of brown fine sandy loam that is about 5 inches thick. The upper part of the subsoil is yellowish-red to red loam or heavy sandy loam. In places the yellowish-red subsoil is exposed.

Runoff is rapid, but the available moisture capacity is adequate for plants. All of the acreage has been cleared, but this soil is not suited to cultivation. Now it is used chiefly for timber. Included in mapping are small areas of Eustis and Cuthbert soils.

Capability unit VIIe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Ruston fine sandy loam, 17 to 40 percent slopes, severely eroded (RsF3).—This well-drained soil of the uplands has a strong-brown surface layer. The subsoil is yellowish-red to red loam or heavy sandy loam to a depth of about 30 inches, and below is red sandy loam. In some areas there are shallow rills or gullies.

Runoff is rapid, but water moves into the surface layer at a moderate rate. Movement through the subsoil is slow to moderate. The available moisture capacity is moderate. Most of the acreage has been cleared and cultivated, but it is now largely in timber. This soil is well suited to timber and wildlife.

Capability unit VIIe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Ruston, Ora, and Cuthbert soils, 5 to 12 percent slopes (RuC).—This undifferentiated unit consists of well-drained Ruston soils and of moderately well drained Ora and Cuthbert soils. Ruston soils comprise about 30 percent of the acreage; Ora soils, about 30 percent; and Cuthbert soils, about 23 percent. A small acreage of Boswell and Savannah soils is also included.

A profile considered typical of a Ruston fine sandy loam is described under Ruston fine sandy loam, 2 to 5 percent slopes; a profile considered typical of an Ora fine sandy loam is described under the Ora series; and a profile considered typical of a Cuthbert fine sandy loam is described under the Boswell series in the mapping unit Boswell, Cuthbert, and Savannah soils, 8 to 17 percent slopes.

These soils are low in natural fertility. They are low in content of organic matter, except in the uppermost 2 inches of the profile, and they are very strongly acid to strongly acid. Surface runoff is medium to rapid, and the hazard of erosion is moderate to high. Permeability ranges from slow to rapid. Because of the strong slopes, the variable texture, and the variations in the rate of infiltration, these soils are not well suited to row crops.

Some areas are cultivated, but most of the acreage is wooded. Many areas that have been cultivated are now in pasture or have reverted to forest. These soils are well suited to the production of wood crops.

Capability unit IVe–1; woodland suitability group 4; Coastal Plain Hills (Steep) range site.

Saffell Series

The Saffell series consists of well-drained, gravelly soils. These soils developed in beds of unconsolidated acid gravelly sandy loam.

The Saffell soils occur with the gently sloping to steep Guin, Eustis, and Ruston soils. They are less sandy in the upper part of the subsoil than the Guin soils. The Saffell soils have a much higher content of gravel than the Eustis and Ruston soils.

The Saffell soils occur in small areas that are scattered throughout the county. The natural vegetation is mainly shortleaf pine, loblolly pine, and scrubby hardwoods with an understory of low shrubs, vines, and grasses. Most of the acreage is wooded, but a small acreage has been cultivated. Practically all of the cultivated acreage has reverted to forest.

The Saffell soils are mapped in an undifferentiated unit with the Guin soils. A profile of a Saffell gravelly sandy loam, considered typical for this series, is described in the Guin series under Guin and Saffell gravelly sandy loams, 2 to 8 percent slopes.

Savannah Series

The Savannah series consists of soils that are moderately well drained and nearly level to moderately sloping. The soils are on uplands of the Coastal Plain. Their surface layer is very dark grayish-brown to grayish-brown fine sandy loam, and their subsoil is yellowish-brown loam. A mottled fragipan is 18 to 30 inches beneath the surface. These soils are low in natural fertility, low in content of organic matter, and strongly acid.

The Savannah soils occur with the moderately well drained Ora soils and the somewhat poorly drained Pheba soils. They have a less reddish subsoil than the Ora soils. They are better drained than the Pheba soils, but their subsoil is similar in color.

The Savannah soils occur throughout the county. The natural vegetation is shortleaf pine and loblolly pine mixed with hardwoods, and there is an understory of shrubs and broomsedge.

Savannah loam, 0 to 2 percent slopes (SbA).—This nearly level, moderately well drained soil is on uplands. The major horizons are—

0 to 7 inches, grayish-brown, friable fine sandy loam.
7 to 26 inches, pale-brown to yellowish-brown, friable loam.

26 to 38 inches, (fragipan) very pale brown, compact, brittle loam.
38 to 60 inches, yellowish-brown, friable loam.

Areas that have been cultivated generally have a grayish-brown plow layer, but in places the surface layer is dark-brown or grayish-brown silt loam. The texture of the fragipan ranges from fine sandy loam to loam.

This soil has good tilth. The impervious fragipan restricts the depth to which roots can penetrate and thereby limits the amount of moisture available to plants. The nearly level relief and friable surface layer make this soil suitable for cultivation. This soil is strongly acid, low in content of organic matter, and low in natural fertility. It can be tilled over a fairly wide range of moisture content. Crops grown on it respond well to fertilizer. Because of the slow surface runoff, graded rows and W-type ditches are generally needed to remove excess water during wet seasons.

Capability unit IIw–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Savannah loam, 2 to 5 percent slopes (SbB).—The profile of this soil is similar to that of Savannah loam, 0 to 2 percent slopes. Because of the gentle slopes, however, surface runoff causes a slight hazard of erosion in cultivated fields. The soil is suited to a fairly large number of row crops. It is well suited to pasture and pine trees.

Capability unit IIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Savannah loam, 2 to 5 percent slopes, eroded (SbB2).—This soil has stronger slopes than Savannah loam, 0 to 2 percent slopes, and its surface layer is 1 to 3 inches thinner. There is a greater amount of runoff, which causes a serious hazard of further erosion. In places the surface layer is brown or yellowish-brown silt loam. In some areas the plow layer extends into the subsoil. If this soil is cultivated, it is suited to a number of kinds of crops, but careful management is required to control erosion. Most of the acreage has been cultivated, but a small acreage has reverted to pine forest.

Capability unit IIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Savannah loam, 5 to 8 percent slopes (SbC).—The profile of this soil is similar to that of Savannah loam, 0 to 2 percent slopes, but in places the surface layer is brown silt loam. Where this soil is cultivated, surface runoff is medium to moderately rapid, and the hazard of erosion is moderate.

A large part of the acreage is wooded, and the rest is cultivated or in pasture. This soil is suited to a number of kinds of crops. If it is cultivated, however, careful management is required to control erosion.

Capability unit IIIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Savannah loam, 5 to 8 percent slopes, eroded (SbC2).—The surface layer of this soil is 2 to 4 inches thinner than that of Savannah loam, 0 to 2 percent slopes. The yellowish-brown subsoil is exposed in small, severely eroded patches. In places the surface layer is brown silt loam.

All of the acreage has been cultivated, but a small acreage has reverted to pine forest. The soil is suited to a number of kinds of crops. If cultivated crops are grown, however, careful management is required to control erosion.

Capability unit IIIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Stough Series

The Stough series consists of nearly level to gently sloping, somewhat poorly drained soils on stream terraces of the Coastal Plain. These soils have a surface layer of very dark grayish-brown to dark-gray fine sandy loam and a subsoil of yellowish-brown fine sandy loam to clay loam. Mottled gray to light-gray, compact and brittle loam is 16 to 28 inches below the surface. These soils are low in fertility, low in content of organic matter, and strongly acid.

The Stough soils occur with the Cahaba, Tilden, Prentiss, Myatt, and Leaf soils. They are more poorly drained and less reddish than the Cahaba and Tilden soils, and they have a fragipan, which is lacking in the Cahaba soils. They are more poorly drained than the Prentiss soils, but they are better drained and less grayish than the Myatt and Leaf soils.

The Stough soils occur throughout the county. The natural vegetation is loblolly pine and hardwoods with an understory of shrubs and native grasses. A fragipan near the surface and a seasonally perched water table limit the use of these soils and their range of suitability for crops.

Stough fine sandy loam, 0 to 2 percent slopes (StA).—This nearly level, somewhat poorly drained soil is on stream terraces. The major horizons are—

0 to 11 inches, dark grayish-brown to light yellowish-brown, friable fine sandy loam.
11 to 25 inches, yellowish-brown to brownish-yellow, friable loam.
25 to 37 inches, (fragipan) light-gray, compact and brittle loam.
37 to 60 inches, mottled gray, friable loam.

In areas that have been cultivated, the surface layer is grayish brown. In places the texture is loam or silt loam.

This soil is strongly acid, low in natural fertility, and low in content of organic matter. The surface layer has fairly good tilth, and the soil can be worked over a moderately wide range of moisture content. Surface runoff is slow, and there is little or no hazard of erosion where cultivated crops are grown. A fragipan near the surface slows the movement of water through this soil. It also restricts the depth to which roots can penetrate and thereby limits the amount of moisture available to plants.

Because of the slow surface runoff, graded rows and V- and W-type ditches are generally needed to remove excess surface water during wet periods. This soil is limited in use and in range of suitability for row crops. It is suited to pasture and pine trees.

Capability unit IIIw–1; woodland suitability group 7; Coastal Plain Hills (Wetlands) range site.

Stough fine sandy loam, 2 to 5 percent slopes (StB).—This soil has better surface drainage than Stough fine sandy loam, 0 to 2 percent slopes, but there is a slight to moderate hazard of erosion if it is cultivated. Most of

the acreage is cultivated, but small areas are wooded. This soil is fairly well suited to field crops and is well suited to pasture and pine trees. It is fairly well suited to sprinkler irrigation, but the depth of the cut that can be made for land leveling is limited because the fragipan is near the surface.

Capability unit IIIw–1; woodland suitability group 7; Coastal Plain Hills (Wetlands) range site.

Susquehanna Series

The Susquehanna series consists of gently sloping to steep, somewhat poorly drained soils on uplands of the Coastal Plain. The soils have a surface layer of dark grayish-brown to yellowish-brown silt loam or fine sandy loam and a subsoil of gray, mottled clay. These soils are low in fertility, low in content of organic matter, and very strongly acid to strongly acid.

The Susquehanna soils occur with the Boswell, Eustis, and Ruston soils. They are more poorly drained than the Boswell soils and lack a reddish color in the upper part of their subsoil. They are generally less sloping than the Eustis and Ruston soils, which are adjacent to them.

The Susquehanna soils occupy small areas that are scattered throughout the county. Three fairly large areas, however, occur in the central, southwestern, and southeastern parts of the county. The natural vegetation is longleaf and slash pines with an understory of shrubs and native grasses. Most of the acreage is wooded, but some of it is cultivated or in pasture.

Susquehanna soils, 2 to 5 percent slopes (SuB).—In this mapping unit are poorly drained soils on uplands of the Coastal Plain. The major horizons are—

0 to 3 inches, yellowish-brown, friable silt loam.
3 to 9 inches, mottled pale-brown and red, plastic clay.
9 to 24 inches, mottled light brownish-gray, plastic silty clay.
24 to 60 inches, mottled gray, plastic clay.

In places the surface layer is fine sandy loam. In areas that have not been cultivated, it ranges from dark grayish brown to yellowish brown in color. In some places there is a very pale brown to grayish-brown second layer. In other places there are layers of silty clay loam within the lower part of the subsoil

These soils are strongly acid, low in content of organic matter, and low in natural fertility. The available moisture capacity is moderate to high.

The surface layer has fairly good tilth, but it tends to crust when bare. Because the clayey subsoil is slowly permeable, the soils are plastic when wet and harden and crack when dry. These soils are poorly suited to cultivation, but they are suited to pasture and forest.

Capability unit IVe–3; woodland suitability group 1; Coastal Plain Hills (Wetlands) range site.

Susquehanna soils, 5 to 8 percent slopes (SuC).—The soils in this mapping unit have a surface layer of silt loam or fine sandy loam that is 4 to 6 inches thick. In eroded areas the surface layer is 2 to 4 inches thick. A small acreage has been cultivated, but most of this acreage has reverted to forest or is used for pasture. These soils are poorly suited to cultivation.

Capability unit VIe–2; woodland suitability group 1; Coastal Plain Hills (Wetlands) and Coastal Plain Hills (Level to Gently Undulating) range sites.

Susquehana soils, 8 to 17 percent slopes (SuD).—Runoff is more rapid on the soils of this mapping unit than on Susquehanna soils, 2 to 5 percent slopes. Small, eroded areas, where the surface layer is only 2 to 4 inches thick, are widely scattered throughout the areas that have been cleared. The greater part of the acreage is wooded, but a small acreage is cultivated or in pasture. These soils are not suited to cultivation. They are only fairly well suited to pasture but are well suited to forest.

Capability unit VIIe–2; woodland suitability group 1; Coastal Plain Hills (Steep) range site.

Swamp (Sw)

Swamp is a miscellaneous land type that is scattered throughout the county. It is in long, narrow strips along small streams and drainageways, and it occurs as backlands along the larger streams. In general, the upper part of the soil material in this land type has a texture that ranges from silt loam to sandy loam. Clay is 1 foot to several feet below the surface. The water table is at the surface or is a few inches below the surface, except during extremely long, dry seasons.

All of the acreage is wooded. The natural vegetation is sweetgum, blackgum, and sweetbay with an understory of shrubs, switchcane, and herbaceous plants. This land type is generally not productive. Timber can be harvested only in extremely long, dry periods. The land is not suited to cultivation or pasture, but it is suited to forest and wildlife.

Capability unit VIIw–1; woodland suitability group 10; Alluvial Land range site.

Tilden Series

The Tilden series consists of nearly level to gently sloping, moderately well drained soils on stream terraces of the Coastal Plain. The soils have a surface layer of grayish-brown to brown fine sandy loam, and a subsoil of strong-brown to yellowish-red loam to clay loam. A mottled fragipan of strong-brown to reddish-brown fine sandy loam to clay loam is at a depth of 20 to 30 inches. These soils resemble the Ora soils on uplands. They are low in content of organic matter, low in natural fertility, and strongly acid.

The Tilden soils occur with the Cahaba, Prentiss, and Stough soils. They are not so well drained as the Cahaba soils, and they have a fragipan. Their drainage is similar to that of the Prentiss soils, but their subsoil is less yellowish.

The Tilden soils are in small areas on stream terraces. The natural vegetation is loblolly pine and hardwoods with an understory of shrubs and native grasses. These soils are well suited to cultivation.

Tilden fine sandy loam, 0 to 2 percent slopes (TdA).—This is a moderately well drained soil on stream terraces. The major horizons are—

0 to 8 inches, grayish-brown, friable fine sandy loam to yellowish-brown, friable silt loam.
8 to 26 inches, strong-brown to yellowish-brown, friable loam.
26 to 56 inches, (fragipan) mottled grayish-brown, very pale brown, yellow, reddish-yellow, and pale-yellow, compact and brittle fine sandy loam.
56 to 68 inches, mottled white, brownish-yellow, brown, and red, very friable sandy loam.

In areas that have not been cultivated, the surface layer is dark brown and ranges from 5 to 8 inches in thickness. The color of the subsoil ranges from strong brown to yellowish red, and the texture ranges from sandy loam to clay loam. Depth to the fragipan ranges from 20 to 30 inches.

This soil is strongly acid, low in natural fertility, and low in content of organic matter. The fragipan near the surface restricts the depth to which roots can penetrate and thereby limits the amount of moisture available to plants. The surface layer is easily kept in good tilth.

If good management is used, this soil is well suited to cultivation. Because of the slow runoff, however, graded rows and W-type ditches are generally needed to remove excess surface water during wet periods. This soil is well suited to pasture and forest.

Capability unit IIw–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Tilden fine sandy loam, 2 to 5 percent slopes (TdB).—Surface runoff is more rapid on this soil than on Tilden fine sandy loam, 0 to 2 percent slopes. This soil is used for row crops, pasture, and pine trees. It is well suited to cultivation, but erosion is a slight to moderate hazard.

Capability unit IIe–2; woodland suitability group 2; Coastal Plain Hills (Level to Gently Undulating) range site.

Vicksburg Series

The Vicksburg soils occur with the Collins and Ochlockonee soils formed in silty alluvial material washed from hills covered by a thin mantle of loess. The surface layer is dark-brown silt loam, and the subsoil is dark-brown, friable silt loam or heavy silt loam. These soils are moderate in natural fertility, low in content of organic matter, and strongly acid.

The Vicksburg soils occur with the Collins and Ochlockonee soils, but they are better drained than the Collins soils. In drainage they are similar to the Ochlockonee soils, but they have a more silty and less sandy profile.

The Vicksburg soils extend in an almost continuous pattern for about 5 miles along the west fork of Dry Creek. Nearly all of the acreage is used for row crops or pasture, and only small patches have reverted to forest or are idle. The native vegetation is chiefly hardwoods.

Vicksburg silt loam (Vc).—This is the only Vicksburg soil mapped in the county. The major horizons are—

0 to 14 inches, dark-brown, friable silt loam.
14 to 60 inches, dark-brown, friable silt loam with common black concretions in the lower part.

The surface layer has good tilth and can be cultivated over a moderately wide range of moisture content. Overflow is the principal hazard to crop production, and diversion ditches may be needed in some areas. Open ditches and graded rows are an effective means of removing excess surface water. This soil is well suited to irrigation and can be leveled to help the flow of irrigation water and to improve surface drainage. Vicksburg silt loam is well suited to row crops.

Capability unit IIw–1; woodland suitability group 8; Alluvial Land range site.

Waverly Series

The Waverly series consists of poorly drained soils formed in silty alluvium washed from uplands covered by a thin mantle of loess. These soils are mapped in an undifferentiated unit with the Bibb soils. In drainage and color they are similar to the Bibb soils, but the Waverly soils are more silty and less sandy than those soils. They have similar texture but are more poorly drained than the Collins and Falaya soils, and they are more grayish than the Collins soils.

A profile considered typical of the Waverly soils is described in the Bibb series under Bibb and Waverly soils.

Use of the Soils for Farm Crops and Pasture

The first part of this section discusses general management practices needed to grow cultivated crops and pasture crops in Covington County. The second part describes the capability grouping of soils and discusses management practices suitable for the soils of each capability unit. Finally, estimated acre yields of the crops commonly grown are given for two levels of management, and facts about the improved management needed to obtain good yields are described.

General Management

In the following pages management practices that apply in general to all the soils of Covington County are discussed. The first part gives statements about management of cropland, and the second part gives statements about the management of pastures.

Management of cropland.—Soils that are cultivated need management practices that will improve fertility and increase the productivity of the soils. They also need practices that will control erosion and maintain good tilth.

All the soils in this county are low in available phosphorus, exchangeable potassium, and nitrogen, and they are also low in lime. For highest yields, phosphorus and potassium are needed for all crops, and nitrogen is needed for all nonlegumes. In addition, most of the soils need 1 to 3 tons of lime per acre for legumes. Unless lime is added, the soils are too acid for good yields of legumes. Many nonlegumes also respond to additions of lime.

The soils should be tested before fertilizer is applied. Consult your county agent for help in taking the samples and in making the tests. The results of the tests will show the kinds and amounts of fertilizer needed and the amount of lime to use. Nitrogen and potassium are readily leached from such soils as the Ruston and Eustis. Small applications of fertilizer, applied frequently, are more efficient on those soils than one large application.

The content of organic matter is low. A good supply of organic matter is difficult to maintain in soils where the climate is as humid as it is in this county. If the soils are cultivated, the large amount of moisture, the high temperature in summer, and the mild temperature in winter cause rapid depletion of organic matter, even under the best management. Returning crop residues to the soils, turning under a cover crop annually, and applying the

right kinds and amounts of fertilizer are means of maintaining the content of organic matter.

Manure can be used as a fertilizer and to supply organic matter. The cost of applying it is high in relation to its value as a fertilizer, however, and a large amount is needed to increase the content of organic matter. The amount of phosphorus in most manure is low, especially in that obtained from poultry farms where broilers are raised. If manure is used, phosphorus needs to be added for best results.

The control of erosion is a serious problem on many of the soils. The loss of surface soil reduces the supply of plant nutrients and the content of organic matter, which are already low in these soils. Also, as a result of erosion, more water runs off, the hazard of erosion increases, and the supply of available moisture decreases. Water may cause either sheet or gully erosion. The degree of erosion depends on the length and steepness of the slopes; on the texture, structure, and permeability of the soils; and on the vegetation.

Among the practices that help control water erosion are the following: Establishing terraces on slopes that do not exceed 8 percent; seeding suitable plants in outlets and waterways (fig. 2); tilling and planting on the contour; diverting water that runs from higher areas; utilizing crop residues and turning under cover crops; using stripcropping in fields that are suited to it; and installing dams or other structures if they are needed.

Frequent tillage destroys the structure of the soils, causes rapid depletion in content of organic matter, and makes the surface layer puddle easily. As a result, the soil does not absorb water readily. It is best to till the soils only when necessary, that is, to prepare a good seedbed and to control weeds. If chemicals are used to control weeds, tillage may be needed less often than if tillage alone is used for weed control.

A tillage pan, also called a plowpan, has formed in some of the soils, mainly the silt loams, loams, and fine sandy loams. A pan develops in some soils if the soil is always tilled at the same depth. Also, the wheels of the tractor compress the soil material in the plow layer if the soil is wet, and the finer particles of clay move downward to fill the fine pores in the compressed soil material. Consequently, a pan forms immediately below the plow layer, and the pan layer restricts the development of roots and the movement of water. To prevent a plowpan from forming, vary the depth of plowing and till only when the soil is dry enough that it will not become compacted. Growing deep-rooted legumes may help to prevent a pan from forming or may help to break up one that has formed.

Figure 2.—**A wide waterway that has been seeded to bahiagrass, which is cut for hay. Terraces empty into this waterway.**

Management of pastures.—The raising of livestock, mainly beef cattle and dairy cattle, has become an important enterprise in this county. As a result, the acreage in improved pastures and hay crops has increased.

Perennial grasses and legumes are used in most long-range grazing programs. Annual grasses and small grains are used to supplement the perennial pastures. They provide forage for dairy cattle and for beef cattle that are being fattened for market.

On the well-drained, steeper soils, a good pasture mixture is bahiagrass grown with crimson clover, or common or Coastal bermudagrass grown with crimson clover. On the well drained and moderately well drained, gently sloping and nearly level soils, good mixtures are bahiagrass and crimson clover; bermudagrass and crimson clover; bermudagrass grown with rescuegrass and crimson clover; or tall fescue and white clover. On the somewhat poorly drained soils, some good pasture mixtures are bahiagrass grown with winter peas or vetch; bermudagrass grown with white clover, winter peas, or vetch; and tall fescue grown with white clover, winter peas, or vetch.

A good pasture mixture on the soils of the bottom lands is bahiagrass and vetch or winter peas; bermudagrass and white clover, vetch, or winter peas; tall fescue and white clover; and dallisgrass and white clover. Bahiagrass and bermudagrass grown with adapted legumes are the most favorable pasture mixtures in this county.

The pasture mixtures mentioned are given only as general suggestions. For more details on planning a pasture and for information about the rates of seeding, dates of planting, and rates at which fertilizer should be applied, consult your county agent or a technician of the Soil Conservation Service.

Capability Groups of Soils

The capability classification is a grouping of soils that shows, in a general way, how suitable soils are for most kinds of farming. It is a practical grouping based on the limitations of the soils, the risk of damage when they are used, and the way they respond to treatment.

In this system all the kinds of soil are grouped at three levels, the capability class, subclass, and unit. The eight capability classes in the broadest grouping are designated by Roman numerals I through VIII. In class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other classes have progressively greater natural limitations. In class VIII (none in this county) are soils and landforms so rough, shallow, or otherwise limited that they do not produce worthwhile yields of crops, forage, or wood products.

The subclasses indicate major kinds of limitations within the classes. Within most of the classes, there can

be as many as four subclasses. The subclass is indicated 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* means that water in or on the soil will interfere 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 country, indicates that the chief limitation is a climate that is too cold or too dry.

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

Within the subclasses are the capability units, groups of soils 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 identified by numbers assigned locally, for example, IIe–1, or IIIe–3.

Soils are classified in capability classes, subclasses, and units in accordance with the degree and kind of their permanent limitations, but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soil; and without consideration of possible but unlikely major reclamation projects.

The eight classes in the capability system, and the subclasses and units in this county, are described in the list that follows:

Class I.—Soils that have few limitations that restrict their use. (No subclasses)
- Unit I–1: Deep, well-drained, nearly level soils.

Class II.—Soils that have some limitations that reduce the choice of plants or that require moderate conservation practices.
- Subclass IIe: Soils subject to moderate erosion if they are not protected.
  - Unit IIe–1: Deep, well-drained, gently sloping fine sandy loams.
  - Unit IIe–2: Gently sloping, slightly to moderately eroded soils that have a fragipan about 2 feet beneath the surface.
- Sublass IIw: Soils that have moderate limitations because of excess water.
  - Unit IIw–1: Deep, well drained and moderately well drained bottom-land soils that are subject to overflow.
  - Unit IIw–2: Nearly level soils that have little or no erosion; a fragipan is about 2 feet beneath the surface.
  - Unit IIw–3: Somewhat poorly drained, bottom-land soils subject to occasional overflow.

Class III.—Soils that have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.
- Subclass IIIe: Soils subject to severe erosion if they are cultivated and not protected.
  - Unit IIIe–1: Deep, moderately sloping soils that have a friable subsoil.
  - Unit IIIe–2: Moderately sloping, slightly eroded to eroded soils that have a fragipan at a depth of about 2 feet.
  - Unit IIIe–3: Moderately well drained, gently sloping to moderately sloping soils that have a clayey subsoil.
- Subclass IIIw: Soils that have severe limitations because of excess water.
  - Unit IIIw–1: Somewhat poorly drained, nearly level and gently sloping soils that have a fragipan and are on uplands and stream terraces.
- Subclass IIIs: Soils that have severe limitations of moisture capacity or tilth.
  - Unit IIIs–1: Deep, nearly level to gently sloping, somewhat excessively drained to excessively drained loamy sands.

Class IV.—Soils that have very severe limitations that restrict the choice of plants, or that require very careful management, or both.
- Subclass IVe: Soils subject to very severe erosion if they are cultivated and not protected.
  - Unit IVe–1: Well-drained, slightly eroded to severely eroded soils that are moderately sloping to strongly sloping.
  - Unit IVe–2: Slightly eroded to severely eroded, moderately sloping to strongly sloping soils that have a fragipan 18 to 30 inches beneath the surface.
  - Unit IVe–3: Moderately well drained and somewhat poorly drained, gently sloping to moderately sloping soils that have a clayey subsoil.
- Subclass IVw: Soils that have very severe limitations for cultivation because of excess water.
  - Unit IVw–1: Nearly level, poorly drained soils on flood plains.
  - Unit IVw–2: Nearly level, poorly drained soils that have a fragipan and are on uplands and stream terraces.
- Subclass IVs: Soils that have very severe limitations of stoniness, low moisture capacity, or other soil features.
  - Unit IVs–1: Deep, sandy, somewhat excessively drained, sloping soils through which water moves rapidly.
  - Unit IVs–2: Deep, gravelly, somewhat excessively drained soils that are gently sloping to moderately sloping.

Class V.—Soils not likely to erode that have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife food and cover.
- Subclass Vw: Soils too wet for cultivation; drainage or protection not feasible.
  - Unit Vw–1: Medium-textured bottom-land soils subject to frequent overflow.

Class VI.—Soils that have severe limitations that make them generally unsuitable for cultivation and that limit their use largely to pasture or range, woodland, or wildlife food and cover.
- Subclass VIe: Soils severely limited, chiefly by risk of erosion if protective cover is not maintained.

Unit VIe–1: Deep, well-drained, slightly to severely eroded, steep soils.
Unit VIe–2: Somewhat poorly drained, moderately sloping, slightly eroded soils.
Subclass VIs: Soils generally unsuitable for cultivation and limited for other uses by their low moisture capacity, gravel or other features.
Unit VIs–1: Strongly sloping, somewhat excessively drained, sandy soils.
Unit VIs–2: Strongly sloping, somewhat excessively drained, gravelly soils.

Class VII.—Soils that have very severe limitations that make them unsuited to cultivation and that restrict their use to grazing, woodland, or wildlife.
Subclass VIIe: Soils very severely limited, chiefly by risk of erosion if protective cover is not maintained.
Unit VIIe–1: Deep, well-drained, steep to very steep soils that are slightly to severely eroded.
Unit VIIe–2: Strongly sloping, slightly eroded soils that have a subsoil of plastic clay.
Unit VIIe–3: Well-drained, very severely eroded land.
Subclass VIIw: Soils very severely limited by excess water.
Unit VIIw–1: Very poorly drained soils on flood plains.
Subclass VIIs: Soils very severely limited by moisture capacity or other soil features.
Unit VIIs–1: Somewhat excessively drained, very steep soils.
Unit VIIs–2: Somewhat excessively drained, steep to very steep, gravelly soils.

Class VIII.—Soils and landforms that have limitations that preclude their use, for commercial production of plants and that restrict their use to recreation, wildlife, water supply, or esthetic purposes. (None in this county.)

Management of Soils by Capability Units

The soils of Covington County have been placed in management groups. Each of these groups is discussed in the following pages. All of the soils in one group have about the same limitations and suitability and respond to the same management. In each group the characteristics of the soils and the suitability of the soils for crops are discussed. In addition, some suggestions are given for management. The examples of crop rotations that are given are not the only ones suited to the soils. Others may be equally well suited.

Capability unit I–1

This unit consists of deep, nearly level soils that are well drained and not more than slightly eroded. The soils are yellowish red to red and are on uplands and stream terraces. The surface layer is very friable fine sandy loam that is 4 to 6 inches thick. The subsoil is friable sandy loam to sandy clay loam. Infiltration, permeability, and available moisture capacity are moderate. The soils are low in organic matter and fertility and are very strongly acid to strongly acid. The soils in this unit are—

Cahaba fine sandy loam, 0 to 2 percent slopes.
Ruston fine sandy loam, 0 to 2 percent slopes.

These soils occupy slightly less than 1 percent of the county. About 85 percent of the acreage is cultivated, 10 percent is pastured, and about 5 percent is wooded.

Soils of this unit have a wide suitability for crops. Cotton, corn, soybeans, vegetables, and sorghum are suitable row crops. Oats and wheat are small grains that make good yields. Vetch, wild winter peas, alyce clover, sericea lespedeza, and crimson clover are well-suited legumes, and annual lespedeza, alfalfa, and white clover are fairly well suited. Bermudagrass, bahiagrass, fescue, and ryegrass are well suited to these soils, and dallisgrass is fairly well suited. Such tree crops as peaches produce fairly well, pecans produce well, and many nursery crops grow well.

The hazard of erosion is slight, and no practices, or only simple practices, are needed to protect the soils. Corn, cotton, or other row crops can be grown year after year. A suitable cropping sequence is a row crop followed by a fall-seeded legume, such as vetch or winter peas. The second year the legume is plowed down and is followed by a row crop.

Phosphate and potash are required for high yields of all crops and permanent pasture, and nitrogen is needed for all nonlegumes. Lime is required for all legumes. Many of the row crops and grasses respond to lime. Even under a good system of management, organic matter is depleted rapidly. Turning under crop residues and a cover crop each year is one way of maintaining a fairly adequate supply of organic matter during the cropping season.

Good tilth is easily maintained over a wide range of moisture content. Tilling on the contour and fertilizing crops properly are adequate measures for the control of erosion. The soils in this group are suitable for irrigation, and high-value row crops can be grown every year.

Capability unit IIe–1

The soils in this unit are deep, well-drained, gently sloping fine sandy loams that have been slightly to moderately eroded. The soils are on uplands and stream terraces. Their surface layer is yellowish-red fine sandy loam that is 4 to 6 inches thick, and their subsoil is friable loam to clay loam. Infiltration and permeability are moderate, and the available moisture capacity is moderate. Organic matter and fertility are low, and the soils are very strongly acid to strongly acid. The soils of this unit are—

Cahaba fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes, eroded.

These soils occupy about 16.5 percent of the county. About 60 percent of the acreage is cultivated, 30 percent is pastured, and 10 percent is wooded.

These soils have wide suitability for crops. Cotton, corn, vegetables, and sorghum are well suited. Oats and wheat make good yields. Legumes that are well suited are vetch, wild winter peas, alyce clover, crimson clover, and sericea lespedeza. Fairly well suited legumes are annual lespedeza and white clover. Of the grasses, bermudagrass, bahiagrass, fescue, and ryegrass are well suited, and dallisgrass is fairly well suited. Tree crops such as pecans grow well, fruit trees are fairly well

suited, and most nursery plants grow well.

The hazard of erosion is slight to moderate, but it is great enough to require simple measures to protect the soils. Clean-tilled crops can be grown year after year if they are adequately fertilized, if crop residues and a cover crop are turned under annually, and if simple mechanical measures for control are applied.

Phosphate and potash are required for high yields of all crops and permanent pasture, and nitrogen is needed for all nonlegumes. All the legumes require lime, and many row crops and pasture grasses respond to lime. Organic matter is depleted rapidly. Crop residues and a cover crop turned under yearly help maintain a fairly adequate supply of organic matter during the cropping season.

Good tilth is easily maintained. Surface runoff is the chief hazard where these soils are cultivated. These practices are needed to reduce the moderate hazard of erosion—graded rows, close-growing crops in the rotation, terraces, and vegetated waterways and outlets. Diversions may be needed in some fields. The soils in this unit are suited to sprinkler irrigation, and high-value row crops can be grown a large part of the time.

Capability unit IIe-2

This unit consists of moderately well drained, gently sloping, slightly to moderately eroded soils on uplands and stream terraces. The surface layer is friable fine sandy loam or silt loam that is 4 to 6 inches thick. The subsoil is friable loam to slightly sticky silty clay loam, and it is underlain by a compact fragipan that is about 2 feet below the surface. In the uppermost 2 feet of the subsoil, infiltration, permeability, and the available moisture capacity are moderate. Permeability of the fragipan is very slow, and root penetration is limited to that part of the profile above the fragipan. These soils are low in organic matter and fertility, and they are very strongly acid to strongly acid. The soils of this unit are—

Ora fine sandy loam, 2 to 5 percent slopes.
Ora fine sandy loam, 2 to 5 percent slopes, eroded.
Ora silt loam, heavy substratum, 2 to 5 percent slopes.
Ora silt loam, heavy substratum, 2 to 5 percent slopes, eroded.
Prentiss fine sandy loam, 2 to 5 percent slopes.
Providence silt loam, 2 to 5 percent slopes.
Providence silt loam, 2 to 5 percent slopes, eroded.
Savannah loam, 2 to 5 percent slopes.
Savannah loam, 2 to 5 percent slopes, eroded.
Tilden fine sandy loam, 2 to 5 percent slopes.

These soils occupy 14.7 percent of the county. About 50 percent of the acreage is cultivated, 40 percent is pastured, and 10 percent is wooded.

These soils have a wide range of suitability for crops, but their use may be slightly limited in dry seasons by the fragipan, and in wet seasons, by a perched water table. Cotton, corn, sorghum, and summer truck crops are well suited, but early truck crops and soybeans are only fairly well suited. Vetch, winter peas, annual lespedeza, crimson clover, white clover, and alyce clover are fairly well suited legumes. Bermudagrass, fescue, and bahiagrass grow well in permanent pastures, and dallisgrass grows fairly well. In temporary pastures, small grains grow well and millet and sudangrass are well suited. Ryegrass is fairly well suited and is suitable for temporary grazing. Such trees as pecans grow well.

The hazard of erosion is great enough to require some control. Cotton, corn, and other clean-tilled crops can be grown year after year if adequate practices are used to protect the soils. These practices consist of planting winter legumes, fertilizing crops well, keeping crop residues on the surface, and growing a cover crop each year.

Phosphate and potash are required for high yields of all crops and pasture, and nitrogen is required for all nonlegumes. Lime is required for all clovers and lespedezas. Vetch, winter peas, and many kinds of row crops also respond well to applications of lime. Even under the best system of management, organic matter is depleted rapidly. Moderate to large amounts of fertilizer need to be added each year, and crop residues and a cover crop should be turned under to maintain a fairly large amount of organic matter during the growing season.

Good tilth is fairly easy to maintain. Some of these soils crust or pack, which causes difficulty in obtaining an adequate stand of some crops.

Surface runoff is a hazard where these soils are cultivated. Fertilization to stimulate plant growth, graded rows, terraces where needed, and vegetated waterways are effective measures of control. The soils are suited to sprinkler irrigation, and high-value crops can be grown each year.

Capability unit IIw-1

This unit consists of deep, well drained and moderately well drained soils on bottom lands that are subject to overflow. The surface layer is friable sandy loam or silt loam that is 4 to 8 inches thick. The subsoil is yellowish-brown to dark-brown, friable sandy loam or silt loam. Infiltration, permeability, and the available moisture capacity are moderate to high. These soils are moderately low in organic matter, low in fertility, and strongly acid to medium acid. The soils in this unit are—

Collins and Iuka soils.
Collins and Iuka soils, local alluvium.
Ochlockonee fine sandy loam.
Ochlockonee soils, local aluvium.
Vicksburg silt loam.

These soils occupy 3.1 percent of the county. About 30 percent of the acreage is cultivated, 30 percent is pastured, and 40 percent is wooded.

Corn, soybeans, cotton, sorghum, and summer truck crops are well suited to these soils. Legumes that are well suited are vetch, winter peas, annual lespedeza, white clover, and alyce clover, but crimson clover and sericea lespedeza are only fairly well suited. Small grains are not suited, because of the hazard of overflow. Bermudagrass, bahiagrass, dallisgrass, and tall fescue are well-suited grasses and can be used for permanent pasture. Millet and sudangrass are well suited and can be used for temporary grazing. Ryegrass is only fairly well suited. Pecans grow well.

The hazard of overflow limits the use of these soils for some crops. Clean-tilled crops can be grown year after year if a moderate to large amount of fertilizer is used and crop residues are turned under.

Phosphate and potash are required for high yields of all crops and pasture grasses, and nitrogen is needed for all nonlegumes. Lime is needed for all clovers and lespedezas, and vetch, winter peas, and many other crops also respond well to lime. Under most systems of management,

organic matter is depleted rapidly. Turning under crop residues and a cover crop 1 year out of 4 will maintain the present content of organic matter.

Good tilth is easily maintained on the sandy loams and fine sandy loams, and those soils can be cultivated over a fairly wide range of moisture content. The silt loams have a tendency to crust and can be tilled only within a fairly narrow range of moisture content.

Overflow is the chief hazard where these soils are cultivated. Proper row arrangement and open ditches are needed to remove excess surface water; diversions may also be needed in some places. For control of overflow water on the larger flood plains, channel improvement, detention reservoirs, and vegetative cover on some of the critical upper slopes are needed. The soils are suited to irrigation, but the number of high-value crops that can be grown is limited.

Capability unit IIw–2

This unit consists of moderately well drained, nearly level soils that are not eroded or only slightly eroded. These soils are yellowish brown and yellowish red and are on uplands and stream terraces. Their surface layer is yellowish-brown or yellowish-red, friable fine sandy loam to silt loam that is 4 to 7 inches thick. Their subsoil is yellowish-brown to yellowish-red, firm to friable loam to clay loam and is underlain by a fragipan. Infiltration, permeability, and the available moisture capacity are moderate in the uppermost part of the profile, but the fragipan is very slowly permeable. Depth to the fragipan is about 2 feet. Root penetration is confined to that part of the subsoil above the fragipan. These soils are low in organic matter and fertility, and they are very strongly acid to strongly acid. The soils of this unit are—

Izagora fine sandy loam, 0 to 2 percent slopes.
Ora fine sandy loam, 0 to 2 percent slopes.
Prentiss fine sandy loam, 0 to 2 percent slopes.
Providence silt loam, 0 to 2 percent slopes.
Savannah loam, 0 to 2 percent slopes.
Tilden fine sandy loam, 0 to 2 percent slopes.

These soils occupy about 2.2 percent of the county. About 50 percent of the acreage is forested, 30 percent is cultivated, and 20 percent is pastured.

The soils in this unit have a wide range of suitability for crops, but the fragipan near the surface, a perched water table during wet seasons, and moderately slow surface runoff limit their use. Cotton, corn, soybeans, sorghum, and summer truck crops are well suited, but early truck crops are not. Vetch, winter peas, annual lespedeza, alyce clover, and white clover grow fairly well, and small grains grow well. Millet and sudangrass are well suited to temporary summer grazing. Bermudagrass, bahiagrass, and fescue are suitable for permanent pasture.

The hazard of erosion is slight. Clean-tilled crops can be grown year after year with minimum practices of erosion control.

Soil fertility is low. Phosphate and potash are required for high yields of all crops, and nitrogen is required for all nonlegumes. Lime is required for many of the legumes, but many row crops and grasses also respond well to lime. Organic matter in these soils is hard to maintain under any system of management. Adequate fertilization and turning under of crop residues and a cover crop help to maintain the present content of organic matter.

Except for the Providence soil, all of these soils can be cultivated over a wide range of moisture content. The Providence soil has a tendency to puddle, which causes difficulty in obtaining a stand of some crops and limits tillage to a narrow range of moisture content.

Moderately slow surface runoff and a perched water table during wet seasons are the chief hazards if these soils are cultivated. Proper row arrangement, open ditches, and diversions in some areas will remove the surface water. These soils are moderately well suited to irrigation.

Capability unit IIw–3

In this capability unit, the only mapping unit is Mantachie and Falaya soils. These soils are nearly level and somewhat poorly drained, and they formed in recent alluvium on bottom lands and in drainageways. The soils are subject to occasional overflow. Their surface layer is light-brown to dark-gray, friable silt loam that is 4 to 10 inches thick, and their subsoil is pale-brown to brownish-gray, friable silt loam to sandy clay loam. Infiltration is slow to moderate, and permeability and the available moisture capacity are moderate to high. These soils are low in organic matter, medium to low in fertility, and strongly acid.

The soils of this unit occupy about 2.2 percent of the county. About 70 percent of the acreage is forested, 20 percent is pastured, and 10 percent is cultivated.

The hazard of overflow limits the use of these soils, but soybeans, sorghum, and corn are well suited. Tall fescue is also well suited, and bermudagrass, dallisgrass, ryegrass, and bahiagrass are fairly well suited. Sudangrass and millet are suitable for summer grazing. Annual lespedeza, white clover, and alyce clover are suitable legumes, but winter peas are only fairly well suited.

There is no hazard of erosion, and the crops that are suited can be grown year after year. Phosphate and potash are required for high yields of all crops and pasture, and nitrogen is needed for all nonlegumes. All of the legumes and many of the nonlegumes respond to lime. Turning under crop residues and a cover crop helps to maintain the present content of organic matter.

Good tilth is easily maintained. Overflow is the chief hazard where these soils are cultivated. The floodwaters stand on the soils for short periods, but long enough to destroy many crops. To control flooding, the channels need to be improved, detention reservoirs built, and a vegetative cover kept on some of the critical upper slopes. Locally, surface runoff is slow, and V- and W-type ditches, graded rows, and diversions, where needed, are an effective means of removing excess water from areas nearby. The soils are suitable for irrigation.

Capability unit IIIe–1

This unit consists of deep, well-drained, slightly or moderately eroded soils that are moderately sloping and on uplands. The surface layer is very friable or friable fine sandy loam that is 4 to 9 inches thick, and the subsoil is red to strong-brown, friable sandy loam to sandy clay loam. Infiltration, permeability, and the available moisture capacity are moderate. The soils are low in fertility,

low in organic matter, and strongly acid. The soils in this unit are—

Ruston fine sandy loam, 5 to 8 percent slopes.
Ruston fine sandy loam, 5 to 8 percent slopes, eroded.

These soils occupy about 4.4 percent of the county. About 60 percent is forested, 15 percent is cultivated, and 25 percent is pastured.

Many crops are suited to these soils. Cotton, corn, sorghum, and truck crops are well suited, and soybeans are fairly well suited. Vetch, winter peas, sericea lespedeza, crimson clover, and annual lespedeza are well-suited legumes, but white clover is only fairly well suited. Red clover does not grow well. Small grains grow well for winter grazing and grain. Bermudagrass and bahiagrass are suitable pasture grasses, and dallisgrass and tall fescue are fairly suitable. Sudangrass, ryegrass, and millet are good for temporary grazing. Pecans, most fruit trees, and nursery stock are well suited.

Close-growing crops should be grown one-half of the time for adequate control of erosion. A suitable cropping sequence is a row crop, such as cotton or corn grown for 2 years, followed by a fall-seeded small grain, such as oats. The third and fourth years the oats are harvested late in May or early in June, and the soils are planted to sudangrass or millet, which is grazed.

Phosphate and potash are required for high yields of all crops and pasture, and nitrogen is required for all nonlegumes. Lime is needed for most legumes, but grasses and row crops also respond to lime. The content of organic matter can be maintained by using sod or close-growing crops in the rotation, keeping crops adequately fertilized, and turning under crop residues and cover crops.

Good tilth is easily maintained, and the soils can be cultivated over a wide range of moisture content. Surface runoff and erosion are the chief hazards where these soils are cultivated. Well-fertilized, close-growing crops grown in the rotation, contour tillage, terraces, and vegetated waterways and outlets are effective measures of control.

Capability unit IIIe–2

These moderately well drained, moderately sloping soils are slightly eroded to eroded and are on uplands. Their surface layer is dark-brown to grayish-brown silt loam to fine sandy loam that is 4 to 6 inches thick. Their subsoil is yellowish-brown to yellowish-red loam to silty clay loam, and it is underlain by a fragipan. Infiltration, permeability, and the available moisture capacity are moderate in the surface layer and in the upper part of the subsoil, but permeability is very slow, and the available moisture capacity is low in the fragipan. Depth to the fragipan is about 2 feet. These soils are low in organic matter and fertility, and they are very strongly acid or strongly acid. Soils in this unit are—

Ora fine sandy loam, 5 to 8 percent slopes.
Ora fine sandy loam, 5 to 8 percent slopes, eroded.
Ora silt loam, heavy substratum, 5 to 8 percent slopes, eroded.
Providence silt loam, 5 to 8 percent slopes.
Savannah loam, 5 to 8 percent slopes.
Savannah loam, 5 to 8 percent slopes, eroded.

These soils occupy 4.0 percent of the county. About 40 percent is cultivated, 30 percent is forested, and 30 percent is pastured.

These soils are suited to many kinds of crops, but their use is slightly limited by the moderate slope and the fragipan near the surface. Cotton, corn, and sorghum are suited to the soils, and soybeans are fairly well suited. Small grains are well suited, and they can be used for grazing or harvested for grain. Bermudagrass and bahiagrass are suitable for permanent pasture, and dallisgrass and tall fescue are fairly well suited. Sudangrass and millet are well suited to temporary grazing, and ryegrass is fairly well suited to winter grazing. Vetch, winter peas, annual lespedeza, white clover, alyce clover, and crimson clover are fairly well suited. Pecans grow fairly well, and most nursery stock is suited.

The hazard of erosion is moderate, but it is great enough to require close-growing or sod crops 2 years out of 4 and adequate measures of erosion control. A suitable cropping sequence is 2 years of clean-tilled crops followed by a fall-seeded small grain, such as oats or wheat. The third year, lespedeza is seeded in the small grain, the small grain is harvested for grain late in May or early in June, and the lespedeza is cut for hay in fall. The fourth year, volunteer lespedeza is cut for hay.

Phosphate and potash are required to produce high yields of all crops and pasture, and nitrogen is needed for all nonlegumes. All legumes and many of the other crops respond to lime. Organic matter is difficult to maintain in these soils. Turning under all crop residues and cover crops, and including well-fertilized sod crops in the rotation will help to maintain the present level of organic matter.

Good tilth is easily maintained in the Ora and Savannah soils, and these soils can be cultivated over a wide range of moisture content. Good tilth is somewhat difficult to maintain in the Providence soil, and that soil can be cultivated within only a fairly narrow range of moisture content. Where a moldboard plow is used, a hardened layer, or plowpan, often forms directly below the plow layer in the Providence soil. Deep tillage helps correct this condition.

Surface runoff is the chief hazard if these soils are cultivated. Graded rows, the use of well-fertilized, close-growing crops or sod crops in the rotation, terraces, vegetated waterways and outlets, and diversions, where needed, are effective measures of control.

Capability unit IIIe–3

In this unit are gently sloping to moderately sloping, moderately well drained soils that are slightly eroded to eroded and are on uplands. The surface layer is dark-gray to yellowish-brown, friable silt loam that is 3 to 6 inches thick. The subsoil is red, plastic clay that is underlain by mottled gray, plastic clay. Some areas are underlain by a fragipan that is about 2 feet below the surface. Infiltration and permeability are slow, but the available moisture capacity is moderately high. These soils are low in organic matter, low in natural fertility, and very strongly acid. Soils in this unit are—

Boswell silt loam, 2 to 5 percent slopes.
Boswell and Savannah soils, 2 to 8 percent slopes.

The soils in this unit occupy about 2.3 percent of the county. About 65 percent of the acreage is forested, 10 percent is cultivated, and 25 percent is pastured.

The number of crops that are suited to these soils is limited. Small grains, such as oats, are fairly well suited. Soybeans and sorghum are well suited, but cotton, corn,

and truck crops are poorly suited. Bermudagrass, bahiagrass, ryegrass, and tall fescue are suitable grasses. Common lespedeza and winter peas are well-suited legumes, and vetch and white clover are fairly well suited. Pecans are fairly well suited, but most fruit trees, field crops, and nursery stock do not produce satisfactory yields.

The hazard of erosion is great enough to require that close-growing crops or sod be used in the rotation at least 4 years out of 6. A suitable cropping sequence is 2 years of clean-tilled crops followed by fall-seeded fescue. The fescue is used for pasture for 4 years. Another suitable cropping sequence is a clean-tilled crop for 2 years followed by oats seeded in fall. The third year, lespedeza is seeded in the oats early in spring, the oats are harvested late in May or early in June, and the lespedeza is harvested for hay in fall. The oats-lespedeza sequence can be followed the fourth, fifth, and sixth years, or volunteer lespedeza can be cut for hay each fall.

Phosphate and potash are required for good yields of all crops and pasture, and nitrogen is needed for all nonlegumes. All the legumes and many of the row crops respond to lime. Turning under crop residues and a cover crop and including adequately fertilized sod crops in the rotation will help to maintain the present content of organic matter.

Good tilth is fairly easy to maintain, but the soils tend to puddle and crust when bare. The soils can be cultivated over a moderate range of moisture content.

Surface runoff and erosion are the chief hazard if these soils are cultivated. Graded rows, terraces, vegetated waterways and outlets, and sod crops included in the rotation are effective measures of control.

Capability unit IIIw–1

These somewhat poorly drained, nearly level and gently sloping soils are slightly eroded to eroded and are on uplands and stream terraces. The surface layer is pale-brown to light-gray, friable silt loam, loam, or fine sandy loam. The subsoil is yellowish-brown fine sandy loam to silty clay loam and is underlain by a fragipan. Depth to the fragipan ranges from 16 to 20 inches. Infiltration, permeability, and the available moisture capacity are moderate in the uppermost 16 to 20 inches of the profile, but permeability is very slow and the available moisture capacity is moderate to low in the fragipan. These soils are low in organic matter, low in fertility, and very strongly to strongly acid. Soils in this unit are—

Bude silt loam, 0 to 2 percent slopes.
Bude silt loam, 2 to 5 percent slopes.
Bude silt loam, 2 to 5 percent slopes, eroded.
Falkner silt loam, 0 to 2 percent slopes.
Falkner silt loam, 2 to 5 percent slopes.
Pheba loam, 0 to 2 percent slopes.
Pheba loam, 2 to 5 percent slopes.
Stough fine sandy loam, 0 to 2 percent slopes.
Stough fine sandy loam, 2 to 5 percent slopes.

Soils of this unit occupy about 4.0 percent of the county. About 35 percent of the acreage is cultivated, 20 percent is forested, and 45 percent is pastured.

These soils are somewhat limited by a perched water table during wet seasons, and they have a relatively narrow range of suitability for crops. Soybeans, cotton, and sorghum are suited, and corn is fairly well suited. Small grains are fairly well suited if harvested for grain, but their use for winter grazing is limited. Tall fescue, ryegrass, dallisgrass, sudangrass, millet, and bahiagrass are suited. Winter peas, vetch, annual lespedeza, and white clover are suitable legumes.

The hazard of erosion is not great, and suitable crops can be grown year after year if minimum practices are used to control erosion. Adequate fertilizer is needed, and crop residues and a cover crop should be turned under annually.

Phosphate and potash are required for high yields of all field crops and pasture, and nitrogen is needed for all nonlegumes. All of the suitable legumes and many other crops respond to lime. Turning under crop residues and a cover crop will maintain the present level of organic matter.

Good tilth is easily maintained in the Pheba and Stough soils, but it is somewhat difficult to maintain in the Bude soils. The Bude soils have a tendency to puddle, and they can be cultivated only within a narrow range of moisture content. The Pheba and Stough soils can be cultivated over a fairly wide range of moisture content.

Runoff is slow on the soils that have slopes of 0 to 2 percent. In those areas V- and W-type ditches, graded rows, and diversions, where needed, are an effective means of removing excess surface water. Runoff is medium on the soils that have slopes of 2 to 5 percent. Cultivating on the contour, providing vegetated waterways and outlets, and growing cover crops are effective means of controlling excessive runoff and erosion on the gently sloping soils.

Capability unit IIIs–1

This unit consists of deep, nearly level to gently sloping soils that are somewhat excessively drained to excessively drained. The soils are on uplands. Their surface layer is dark-gray to dark grayish-brown, loose loamy sand. Their subsoil is strong-brown to yellowish-red loamy sand. Infiltration and permeability are rapid, and the available moisture capacity is low. Organic matter and natural fertility are very low, and the soils are very strongly acid to strongly acid. Soils in this unit are—

Eustis loamy sand, terrace, 0 to 2 percent slopes.
Eustis loamy sand, 2 to 5 percent slopes.

The soils of this unit occupy 1.1 percent of the county. About 75 percent of the acreage is pastured, 20 percent is forested, and 5 percent is cultivated. The soils of this unit have a moderate suitability for crops. Truck crops grown in winter and early in spring are fairly well suited. Cotton and sorghum are poorly suited, but small grains are suited. Bermudagrass, bahiagrass, and ryegrass are fairly well suited for winter grazing. Legumes that are suited are sericea lespedeza, crimson clover, and vetch.

The hazard of erosion is slight, and suitable crops can be grown year after year. Fertility is difficult to maintain, and frequent applications of phosphate and potash are required for satisfactory yields of crops and pasture. Nitrogen is needed for all nonlegumes. Lime is required for all the legumes, and most other crops respond to lime. Organic matter is depleted rapidly. Turning under crop residues and plowing under a cover crop annually are ways of maintaining the present content of organic matter.

These soils are droughty, and it is difficult to establish a stand of most crops and pasture plants. These factors, and the difficulty of keeping a supply of plant nutrients in the soils, are the chief limitations if these soils are cultivated, but good tilth is easily maintained.

Capability unit IVe-1

These well-drained, moderately sloping to strongly sloping soils are on uplands. They are slightly eroded to severely eroded. The surface layer is dark grayish-brown to yellowish-brown, very friable fine sandy loam, and their subsoil is strong-brown to red, friable sandy loam to clay loam. Infiltration, permeability, and the available moisture capacity are moderate. The soils are low in organic matter and fertility, and they are strongly acid. Soils in this unit are—

Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded.
Ruston fine sandy loam, 8 to 12 percent slopes.
Ruston fine sandy loam, 8 to 12 percent slopes, eroded.
Ruston, Ora, and Cuthbert soils, 5 to 12 percent slopes.

The soils of this unit occupy about 4.2 percent of the county. About 40 percent of the acreage is forested, 35 percent is pastured, and 25 percent is cultivated.

These soils have a wide range of suitability for crops. Cotton, corn, soybeans, vegetables, and sorghum are well suited, and oats and wheat yield well. Vetch, winter peas, alyce clover, sericea lespedeza, and crimson clover are well-suited legumes, and annual lespedeza, soybeans, alfalfa, and white clover are fairly well suited. Bermudagrass, bahiagrass, tall fescue, and ryegrass are suited, and dallisgrass is fairly well suited. Peaches grow fairly well, and pecans and nursery crops grow well.

The hazard of erosion is moderately high. For adequate control, these soils need to be kept under close-growing crops at least three-fourths of the time. A suitable cropping sequence is 2 years of row crops, such as cotton, corn, or truck crops, followed by 6 years of pasture. An alternative cropping system would be 2 years of row crops followed by a small grain for grazing or grain, and lespedeza for hay. Unless proper measures are used to control erosion, this soil needs to remain in permanent vegetation.

Phosphate and potash are required for high yields of all crops and pasture, and nitrogen is needed for all nonlegumes. Legumes and many other crops respond to lime. The content of organic matter is low, and the supply is difficult to maintain. Turning under crop residues and a cover crop annually and including sod crops in the rotation are effective means of maintaining the content of organic matter.

Good tilth is easily maintained, and these soils can be cultivated over a wide range of moisture content. Surface runoff is the chief hazard if the soils are cultivated. Contour tillage, terraces on long slopes, vegetated waterways and outlets, diversions, where needed, and well-fertilized sod crops in the rotation are effective practices for erosion control.

Capability unit IVe-2

These slightly eroded to severely eroded, moderately well drained soils are moderately sloping to strongly sloping and are on uplands. Their surface layer is grayish-brown, friable fine sandy loam that is 4 to 7 inches thick. Their subsoil is strong-brown to yellowish-red clay loam or loam and is underlain by a fragipan. Depth to the fragipan ranges from 18 to 30 inches. Infiltration, permeability, and the available moisture capacity are moderate in that part of the solum above the fragipan. Permeability is very slow in the fragipan, and the available moisture capacity is low. Organic matter and fertility are low, and the soils are very strongly acid. Soils in this unit are—

Ora fine sandy loam, 5 to 8 percent slopes, severely eroded.
Ora fine sandy loam, 8 to 12 percent slopes.
Ora fine sandy loam, 8 to 12 percent slopes, eroded.

These soils occupy about 1.5 percent of the county. About 40 percent of the acreage is pastured, 30 percent is cultivated, 20 percent is forested, and 10 percent is idle.

The soils in this unit have a wide suitability for crops, but their use is greatly limited because of the strong slopes. Vetch, winter peas, annual lespedeza, crimson clover, white clover, and alyce clover are suitable legumes. Bermudagrass and bahiagrass are suitable for permanent pasture. Tree crops such as pecans grow well.

Phosphate and potash are required for high yields of all pasture plants, and nitrogen is needed for all nonlegumes. Lime is required to maintain a productive stand of all clovers and lespedezas. Vetch and winter peas also respond well to applications of lime.

Surface runoff is the chief hazard where these soils are not well sodded. The hazard of erosion is great enough to require a continuous cover of sod or trees.

Capability unit IVe-3

This unit consists of moderately well drained and somewhat poorly drained soils that are gently sloping to moderately sloping. The soils are on uplands. Their surface layer is dark-gray to yellowish-brown, friable silt loam that is 3 to 6 inches thick. Their subsoil is red to mottled gray, plastic clay. Infiltration and permeability are slow, and the available moisture capacity is moderately high. These soils are low in organic matter and natural fertility, and they are strongly acid. The soils in this unit are—

Boswell silt loam, 5 to 8 percent slopes.
Boswell silt loam, 5 to 8 percent slopes, eroded.
Susquehanna soils, 2 to 5 percent slopes.

These soils occupy about 1.0 percent of the county. Nearly all the acreage is forested, but some small areas are used for row crops and pasture. The number of row crops that are suited to these soils is limited. Small grains, soybeans, and grain sorghum are fairly well suited. The soils are well suited to pasture and forest. Bermudagrass, tall fescue, dallisgrass, sudangrass, johnsongrass, and ryegrass are suited. Annual lespedeza, wild winter peas, sericea lespedeza, and white clover are suitable legumes.

Because of the moderate slope and the slow rate of infiltration, runoff is moderate and there is a moderate hazard of erosion. Wetness in winter, dryness in summer, and low fertility are factors that must be considered in planning a good system of management.

Erosion can be controlled by using a cropping system and water-control measures that reduce and slow down runoff. These soils need close-growing crops about 6 out of 8 years. A suitable cropping sequence is one in which the soils are kept in sod 4 or 5 years and in row crops for 1 or 2 years. Where the soils are cultivated, tillage on the contour and sodded waterways are effective in controlling runoff. On longer slopes, terraces help to control erosion.

Pasture and hay crops produce good yields, but they need lime and fertilizer. The pastures can be damaged by trampling if livestock are allowed to graze in winter and early in spring when the soils are wet.

Capability unit IVw-1

In this capability unit, the only mapping unit is Bibb and Waverly soils. These poorly drained, nearly level

soils are on flood plains along streams. Their surface layer is light brownish-gray to grayish-brown, friable fine sandy loam or silt loam, and their subsoil is light-gray to gray loam. Because of the high water table during most of the year, infiltration and permeability are slow, but the available moisture capacity is high. These soils are moderately low in organic matter and low in fertility. They are strongly acid to medium acid.

The soils of this unit occupy about 3.8 percent of the county. About 85 percent of the acreage is forested, 10 percent is pastured, and 5 percent is cultivated or idle.

These soils have a narrow range of suitability for crops. If drainage is provided, soybeans and sorghum are fairly well suited row crops. Bermudagrass, bahiagrass, dallisgrass, and tall fescue are fairly well suited grasses for permanent pasture. Annual lespedeza is a fairly suitable hay crop, and white clover makes fairly good yields.

If these soils are drained, satisfactory yields of suitable row crops and pasture can be obtained. If good management is used and adequate fertilizer is added, row crops can be grown year after year.

Phosphate and potash are required for high yields of all crops and pasture, and nitrogen is required for all nonlegumes. Lime is required to maintain a productive stand of all legumes, and many other crops and pasture plants also respond to lime. Turning under crop residues and plowing under a cover crop help to maintain the level of organic matter.

These soils have fair to good tilth. Excess surface water, a high water table during wet seasons, and occasional flooding are the chief hazards if they are cultivated or pastured. Proper row arrangement and a complete drainage system of V- and W-type ditches will help to remove excess surface water. Flood control on streams is also required.

Capability unit IVw–2

This unit consists of poorly drained, nearly level soils that are on uplands and stream terraces. The surface layer is very dark gray to yellowish-brown, friable silt loam that is 4 to 6 inches thick, and the subsoil is light yellowish-brown to gray silt loam to clay. The subsoil of the Henry and Myatt soils is underlain by a fragipan. Infiltration and permeability are slow, and the available moisture capacity is moderate. The content of organic matter is moderately low, fertility is low, and the soils are strongly acid. The soils in this unit are—

Henry silt loam.
Leaf silt loam.
Myatt silt loam.

The soils of this unit occupy about 3.8 percent of the county. About 60 percent of the acreage is forested, 25 percent is pastured, 10 percent is cultivated, and 5 percent is idle.

These soils have a narrow range of suitability for crops, but soybeans are fairly well suited. Bermudagrass, bahiagrass, dallisgrass, and tall fescue are fairly well suited to permanent pasture. Winter peas, white clover, and annual lespedeza are fairly well-suited legumes.

Row crop production is limited to those crops that can be grown during the summer and early in fall. If good management is used, and if the recommended kinds and amounts of fertilizer are applied, the crops that are adapted can be grown year after year.

Phosphate and potash are required for high yields of all crops and pasture, and nitrogen is required for all nonlegumes. Lime is required to maintain a productive stand of all legumes, and most other crops and pasture also respond to lime. Turning under crop residues and plowing under a cover crop help to maintain the content of organic matter.

Good tilth is somewhat difficult to maintain. The silty surface layer tends to puddle and pack when wet, and the soils can be cultivated only within a narrow range of moisture content.

Slow surface runoff and poor internal drainage are the limiting factors if the soils are cultivated or pastured. A complete system of V- and W-type ditches and graded rows are necessary to remove excess surface water.

Capability unit IVs–1

Eustis loamy sand, 5 to 8 percent slopes, is the only soil in this capability unit. It is deep, sloping, sandy, and droughty, and it is subject to leaching. This soil is somewhat excessively drained. The surface layer is very dark grayish brown to brown, and the subsoil is strong brown to yellowish red. The content of organic matter and the natural supply of plant nutrients are low. Water rapidly moves into and through the soil, and the available moisture capacity is low. The hazard of erosion is none to slight.

This soil is suited to a limited number of crops. Grain sorghum is a suitable row crop, and Coastal bermudagrass, common bermudagrass, bahiagrass, ryegrass, and crimson clover are suitable for pasture. Pecan trees also grow well. If this soil is used for row crops, graded rows that lead to grassed waterways should be used. A suitable cropping system is 4 years of pasture and 2 years of row crops.

Capability unit IVs–2

In this capability unit, the only mapping unit is Guin and Saffell gravelly sandy loams, 2 to 8 percent slopes. These gently sloping to moderately sloping soils are deep and are well drained to somewhat excessively drained. They are droughty, and in places are subject to severe leaching. The surface layer is dark grayish-brown gravelly sandy loam, and the subsoil is strong-brown to yellowish-red gravelly sandy loam to gravelly loamy sand. Some areas are underlain by thick beds of gravel that are 30 to 60 inches below the surface. Infiltration and permeability are moderate to rapid, and the available moisture capacity is low. The content of organic matter and natural fertility are low, and these soils are strongly acid.

The soils of this unit are poorly suited to row crops. They range from fair to poor in suitability for pasture. The best adapted pasture plants are bermudagrass, bahiagrass, and sericea lespedeza. These soils are best suited to pine trees. The trees should be protected from fire and from unrestricted grazing. Where these soils are used for pasture, a complete fertilizer is needed, and the pasture should not be overgrazed.

Capability unit Vw–1

In this capability unit the only mapping unit is Ochlockonee, Mantachie, and Iuka soils. The soils are medium textured and formed in alluvium. They occur in a mixed

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pattern in wooded areas of bottom lands, and they are subject to frequent overflow. The surface layer and the subsoil range from silt loam to sandy loam.

The content of organic matter and natural fertility are low, and the available moisture capacity is moderate. Infiltration and permeability are moderate, and the soils are strongly acid.

These soils are subject to severe flooding and are, therefore, not suited to row crops or pasture. Overflow is the primary hazard. The soils must be protected from overflow before other management can be planned.

Capability unit VIe–1

This unit consists of deep, well-drained, slightly eroded to severely eroded, steep soils that are on uplands. The surface layer is generally yellowish-brown, friable fine sandy loam, and the subsoil is strong-brown to red, friable sandy loam to clay loam. Infiltration, permeability, and the available moisture capacity are moderate. These soils are low in organic matter and fertility, and they are strongly acid. Soils in this unit are—

Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded.
Ruston fine sandy loam, 12 to 17 percent slopes.
Ruston fine sandy loam, 12 to 17 percent slopes, eroded.

These soils occupy about 12.9 percent of the county. About 60 percent of the acreage is pastured, 25 percent is cultivated, 10 percent is idle, and 5 percent is forested.

These soils have a wide suitability for plants. Vetch, winter peas, alyce clover, sericea lespedeza, annual lespedeza, and crimson clover are suitable legumes, and bermudagrass, bahiagrass, and tall fescue are suitable grasses. Such tree crops as peaches and pecans make good yields, and some nursery crops also grow well.

Phosphate and potash are required for high yields of all pasture plants. Nitrogen is required for all nonlegumes.

Erosion is the chief hazard where these soils are not well sodded. Therefore, perennial vegetation should be kept on the soils at all times.

Capability unit VIe–2

Only the mapping unit of Susquehanna soils, 5 to 8 percent slopes, is in this capability unit. These are somewhat poorly drained and moderately sloping soils, and they are slightly eroded. They are on uplands. The surface layer is dark grayish-brown to yellowish-brown, friable fine sandy loam or silt loam that is 3 to 6 inches thick, and the subsoil is mottled gray, plastic clay. Infiltration and permeability are slow, and the available moisture capacity is moderate to high. These soils are low in organic matter and fertility, and they are very strongly acid to strongly acid.

These soils occupy about 0.4 percent of the county. About 85 percent of the acreage is forested, 10 percent is pastured, and 5 percent is idle.

These soils have only a narrow range of suitability for crops. They are not suited to row crops. Bermudagrass, bahiagrass, tall fescue, and dallisgrass are fairly suitable for permanent pasture. Legumes that are fairly well suited are annual lespedeza, white clover, and winter peas.

Phosphate and potash are required for high yields of all pasture plants, nitrogen is required for all nonlegumes, and lime is required to maintain a productive stand of all legumes. The content of organic matter is low, but it is fairly easy to maintain under pasture sod.

Erosion is the limiting factor in using these soils for field crops. It is not a serious hazard, however, where the soils are used for pasture.

Capability unit VIs–1

Eustis loamy sand, 8 to 12 percent slopes, is the only soil in this capability unit. This deep, sandy, somewhat excessively drained soil is strongly sloping and is on uplands. Its surface layer is dark-gray to very dark grayish-brown, loose loamy sand. Infiltration and permeability are rapid, and the available moisture capacity is low. Organic matter and fertility are low, and the soil is very strongly acid.

This soil occupies about 0.1 percent of the county. About 95 percent of the acreage is forested, and 5 percent is idle.

This soil has a narrow range of suitability for crops. It is not well suited to row crops, and the production of pasture and hay crops is limited. Bermudagrass, bahiagrass, crimson clover, and sericea lespedeza are fairly suitable for pasture, but they may be damaged by lack of moisture during dry summers. Stands of all crops are sometimes difficult to establish.

Potash and phosphate are required for all pasture plants, nitrogen is required for all nonlegumes, and lime is required to maintain a stand of the legumes. The grasses also respond to lime. Frequent applications of fertilizer, especially nitrogen, are required to maintain satisfactory plant growth. The content of organic matter may be maintained under pasture sod.

Capability unit VIs–2

Guin gravelly sandy loam, 8 to 12 percent slopes, is the only soil in this capability unit. It is strongly sloping and gravelly, and it is somewhat excessively drained, droughty, and subject to leaching. The surface layer is very dark grayish-brown gravelly sandy loam. Below the surface layer is yellowish-brown to yellowish-red gravelly fine sandy loam to gravelly loamy sand that overlies massive beds of gravel. The content of organic matter, the natural supply of plant nutrients, and the available moisture capacity are low, and this soil is strongly acid. The hazard of erosion is none to slight.

This soil is poorly suited to fairly well suited to pasture. If it is used for that purpose, the best pasture plants are bermudagrass, bahiagrass, and sericea lespedeza.

In areas where there is enough soil material mixed with the gravel, this soil is fairly well suited to pine trees. The trees should be protected from fire and from unrestricted grazing.

If this soil is used for pasture, a complete fertilizer is needed, and the pasture should not be overgrazed. Some areas are used as a commercial source of gravel.

Capability unit VIIe–1

In this unit are deep, well-drained, steep to very steep soils that are slightly eroded to severely eroded. The soils are on uplands. Their surface layer is very friable fine sandy loam that is 4 to 6 inches thick, and their subsoil is

friable sandy loam to sandy clay loam or loam. Infiltration, permeability, and the available moisture capacity are moderate. These soils are low in organic matter and in fertility, and they are strongly acid. Soils in this unit are—

Ruston fine sandy loam, 12 to 17 percent slopes, severely eroded.
Ruston fine sandy loam, 17 to 40 percent slopes.
Ruston fine sandy loam, 17 to 40 percent slopes, eroded.
Ruston fine sandy loam, 17 to 40 percent slopes, severely eroded.

These soils occupy about 5.5 percent of the county. About 90 percent of the acreage is forested, 5 percent is pastured, and 5 percent is cultivated or idle.

The soils have a wide range of suitability for crops, but their use is limited by the steep slopes, rapid runoff, and severe hazard of erosion. If adequate fertilization and good management are used, these soils can be used for permanent pasture. Use of farm machinery is limited on the steeper slopes. Forest is considered best for these soils.

Capability unit VIIe–2

This unit consists of strongly sloping, moderately well drained to somewhat poorly drained soils that are only slightly eroded and are on uplands. The surface layer is dark-gray to yellowish-brown, friable silt loam or sandy loam that is 3 to 6 inches thick, and the subsoil is red to mottled gray, plastic clay. Infiltration and permeability are slow, and runoff is rapid. The available moisture capacity is moderately high. These soils are low in organic matter and natural fertility, and they are strongly acid. Soils in this unit are—

Boswell silt loam, 8 to 17 percent slopes.
Boswell, Cuthbert, and Savannah soils, 8 to 17 percent slopes.
Susquehanna soils, 8 to 17 percent slopes.

The soils of this unit occupy about 1.2 percent of the county.

Because of their slow permeability, slow rate of infiltration, and rapid runoff, these soils are best suited to pine trees. They can be used to some extent for pasture. Diversions are needed in many places to manage the water during wet periods when plants are being established.

Suitable sod plants are annual lespedeza, bermudagrass, and white clover. Trees should be protected from fire and from unrestricted grazing.

Capability unit VIIe–3

Only one miscellaneous land type, Gullied land, is in this capability unit. This unit consists of gently sloping to steep, well-drained, very severely eroded soils on uplands. The surface layer has been completely removed in most places, but small areas of soils that have retained much of their surface layer are included. Generally these are the areas that have been protected by trees, grass, or other cover. Surrounding the areas are gullies, and many of these gullies are deep. No attempt has been made to classify these soils by series, but they are mainly medium textured and well drained. Infiltration, permeability, and the available moisture capacity are moderate to low. Organic matter and fertility are low, and the soils are very strongly acid.

This land type occupies about 0.2 percent of the county. About 50 percent of the acreage has reverted to forest, and 50 percent is idle. Although this land was once productive, it has lost its capacity for production of field crops. It is suited only to forest.

Capability unit VIIw–1

Only one miscellaneous land type, Swamp, is in this capability unit. This very poorly drained, nearly level soil is on flood plains. The surface layer and subsoil are variable, and the water table is near or above the surface for long periods of time. Infiltration and permeability are slow, and the available moisture capacity is high to excessive. This soil is moderately low in organic matter and fertility, and is strongly acid.

This soil occupies about 1.8 percent of the county. All of the acreage is wooded.

Because it is wet, this soil is not suited to cultivation or pasture. It is suited to forest and wildlife.

Capability unit VIIs–1

In this unit are somewhat excessively drained, very steep soils on uplands. The surface layer is dark-gray to dark grayish-brown, loose loamy sand that is 3 to 10 inches thick, and the subsoil is strong-brown to yellowish-red loamy sand or sandy loam. Infiltration and permeability are rapid, and the available moisture capacity is low. Organic matter and fertility are very low, and the soils are very strongly acid or strongly acid. The soils in this unit are—

Eustis loamy sand, 12 to 40 percent slopes.
Eustis and Ruston soils, 12 to 40 percent slopes.

These soils occupy about 4.2 percent of the county. About 95 percent of the acreage is forested, and 5 percent is idle.

These soils have a narrow range of suitability for plants. Row crops and pasture plants are not suited. Forest is the best use where adapted forest types are established.

Capability unit VIIs–2

Guin gravelly sandy loam, 12 to 40 percent slopes, is the only soil in this capability unit. It is steep to very steep and somewhat excessively drained. The surface layer is very dark grayish-brown gravelly sandy loam or loam, and the subsoil is yellowish-brown to yellowish-red gravelly fine sand to gravelly loamy sand over massive gravel beds. Organic matter, natural fertility, and the available moisture capacity are low, and this soil is strongly acid.

There is little or no hazard of erosion, but this soil is droughty and is subject to leaching. In areas where there is enough soil material, this soil is fairly well suited to pine trees. Some areas are used as a commercial source of gravel.

Estimated Yields[1]

Table 2 gives estimated average acre yields of the principal crops grown in this county. Estimates of yields in columns A are those commonly obtained under the average management practiced in the county. They are based on (1) yields on farms where cooperative soil productivity-

[1] This section was prepared with the assistance of JOHN W. MCMILLAN, agronomist, Coastal Plain Branch Experiment Station, Mississippi Agricultural Experiment Station.

management studies were made and (2) estimates by agronomists and others who have had much experience with the crops and soils of this county.

Estimates of yields in columns B were obtained under a high level of management. They are based on (1) yields obtained in long-term experiments performed by the Mississippi Agricultural Experiment Station and (2) on long-term fertility tests made on plots in Covington County and adjoining counties.

Data on yields obtained in experiments were adjusted to reflect the combined influence of slope and levels of management. If such data were not available, estimates were made using available information for similar soils. All yields were obtained on soils that were not irrigated.

Estimates are not given for those soils that are unsuitable for a specific crop. They are also not given for crops that are not commonly grown in the county or for crops grown on only a small acreage.

TABLE 2.—*Estimated average acre yields of the principal crops under two levels of management, Covington County, Miss.*

[Columns A represent average yields obtained under average management; columns B represent average yields obtained under improved management. Absence of a yield figure indicates the crop is not commonly grown or the soil is not well suited to it under the management specified]

Soil	Cotton		Corn		Oats		Hay				Grazing			
							Millet		Bahiagrass		Bermudagrass and legumes		Bahiagrass and legumes	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lbs.	*Lbs.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Tons*	*Tons*	*Cow-acre-days*[1]	*Cow-acre-days*[1]	*Cow-acre-days*[1]	*Cow-acre-days*[1]
Bibb and Waverly soils							2.0	3.5	2.5	3.5	135		135	
Boswell silt loam, 2 to 5 percent slopes									1.0	1.5	90	205	90	205
Boswell silt loam, 5 to 8 percent slopes									1.0	1.5	90	205	90	205
Boswell silt loam, 5 to 8 percent slopes, eroded									1.0	1.5	90	205	90	205
Boswell silt loam, 8 to 17 percent slopes										1.0	70	150	70	100
Boswell, Cuthbert, and Savannah soils, 8 to 17 percent slopes														
Boswell and Savannah soils, 2 to 8 percent slopes									1.0	1.5	90	205	90	205
Bude silt loam, 0 to 2 percent slopes	250	450	40	50	30	60	2.5	4.5	2.5	4.0	90	175	105	210
Bude silt loam, 2 to 5 percent slopes	300	450	40	50	30	60	2.5	4.5	2.5	4.0	90	175	105	210
Bude silt loam, 2 to 5 percent slopes, eroded	250	450	40	50	30	60	2.5	4.5	2.5	4.0	90	175	105	210
Cahaba fine sandy loam, 0 to 2 percent slopes	450	750	60	100	40	100	3.0	4.5	3.5	5.5	120	225	150	300
Cahaba fine sandy loam, 2 to 5 percent slopes	450	750	60	100	40	100	3.0	4.5	3.5	5.5	120	225	150	300
Collins and Iuka soils			50	90	30	60	2.5	5.0	2.5	5.0	120	225	165	300
Collins and Iuka soils, local alluvium			50	90	30	60	2.5	5.0	2.5	5.0	120	225	165	300
Eustis loamy sand, 2 to 5 percent slopes					15	25			1.0	1.5	60	150	60	150
Eustis loamy sand, 5 to 8 percent slopes					15	25			1.0	1.5	60	150	60	150
Eustis loamy sand, 8 to 12 percent slopes														
Eustis loamy sand, 12 to 40 percent slopes														
Eustis loamy sand, terrace, 0 to 2 percent slopes											80	170	90	175
Eustis and Ruston soils, 12 to 40 percent slopes														
Falkner silt loam, 0 to 2 percent slopes		250			20	30			1.5	2.5	65	135	80	200
Falkner silt loam, 2 to 5 percent slopes		250			20	30			1.5	2.5	65	135	80	200
Guin gravelly sandy loam, 8 to 12 percent slopes									1.5	2.5	80	170	90	175

See footnote at end of table.

TABLE 2.—*Estimated average acre yields of the principal crops under two levels of management, Covington County, Miss.*—Continued

Soil	Cotton		Corn		Oats		Hay				Grazing			
							Millet		Bahiagrass		Bermudagrass and legumes		Bahiagrass and legumes	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lbs.	*Lbs.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Tons*	*Tons*	*Cow-acre-days*[1]	*Cow-acre-days*[1]	*Cow-acre-days*[1]	*Cow-acre-days*[1]
Guin gravelly sandy loam, 12 to 40 percent slopes									1. 5	2. 5	80	170	90	175
Guin and Saffell gravelly sandy loams, 2 to 8 percent slopes											65	135	80	200
Gullied land														
Henry silt loam			45	60	30	60	2. 5	4. 0	2. 5	4. 5	65	135	80	200
Izagora fine sandy loam, 0 to 2 percent slopes							1. 5	2. 0	1. 5	2. 0	65	135	80	200
Leaf silt loam			50	85	30	60	2. 5	5. 0	3. 5	5. 0	120	225	150	300
Mantachie and Falaya soils							2. 0	2. 5	3. 5	4. 0	65	135	80	200
Myatt silt loam	450	700	80	100	40	90	3. 0	5. 0	3. 5	5. 0	120	225	150	300
Ochlockonee fine sandy loam	450	700	80	100	40	90	3. 0	5. 0	3. 5	5. 0	120	225	150	300
Ochlockonee soils, local alluvium														
Ochlockonee, Mantachie, and Iuka soils	400	675	50	80	40	100	2. 0	3. 5	3. 0	4. 75	100	220	140	270
Ora fine sandy loam, 0 to 2 percent slopes	400	600	50	80	40	100	2. 0	3. 5	3. 0	4. 75	100	220	140	270
Ora fine sandy loam, 2 to 5 percent slopes	400	600	45	70	40	90	2. 0	3. 5	3. 0	4. 75	100	220	140	270
Ora fine sandy loam, 2 to 5 percent slopes, eroded	350	550	45	70	40	85	2. 0	3. 5	3. 0	4. 75	90	200	110	250
Ora fine sandy loam, 5 to 8 percent slopes	350	550	40	65	40	85	2. 0	3. 5	3. 0	4. 75	90	200	110	240
Ora fine sandy loam, 5 to 8 percent slopes, eroded									2. 5	3. 50	80	180	100	230
Ora fine sandy loam, 5 to 8 percent slopes, severely eroded									2. 5	3. 75	80	200	110	240
Ora fine sandy loam, 8 to 12 percent slopes									2. 5	3. 75	80	200	110	240
Ora fine sandy loam, 8 to 12 percent slopes, eroded	400	600	45	80	40	100	2. 0	3. 5	3. 0	4. 75	100	220	140	270
Ora silt loam, heavy substratum, 2 to 5 percent slopes	400	600	45	70	40	90	2. 0	3. 5	3. 0	4. 75	100	220	140	270
Ora silt loam, heavy substratum, 2 to 5 percent slopes, eroded	350	550	40	65	40	85	2. 0	3. 5	3. 0	4. 75	90	200	110	240
Ora silt loam, heavy substratum, 5 to 8 percent slopes, eroded	250	450	40	50	30	60	2. 5	3. 0	3. 5	4. 0	90	175	105	210
Pheba loam, 0 to 2 percent slopes	300	450	40	50	30	60	2. 5	3. 0	3. 5	4. 0	90	175	105	210
Pheba loam, 2 to 5 percent slopes	400	675	50	80	40	100	2. 5	3. 0	3. 5	4. 0	90	175	140	270
Prentiss fine sandy loam, 0 to 2 percent slopes	400	675	50	80	40	100	2. 5	3. 0	3. 5	4. 0	90	175	140	270
Prentiss fine sandy loam, 2 to 5 percent slopes	400	675	50	80	40	100	2. 5	3. 0	3. 5	4. 0	90	175	140	270
Providence silt loam, 0 to 2 percent slopes	400	675	50	80	40	100	2. 0	3. 5	3. 5	4. 75	100	220	140	270
Providence silt loam, 2 to 5 percent slopes	400	675	50	80	40	100	2. 0	3. 5	3. 5	4. 75	100	220	140	270
Providence silt loam, 2 to 5 percent slopes, eroded	375	650	50	80	40	100	2. 0	3. 5	3. 0	4. 0	90	200	110	250
Providence silt loam, 5 to 8 percent slopes	350	600	45	75	35	100	2. 0	3. 0	3. 0	4. 0	90	200	140	240
Ruston fine sandy loam, 0 to 2 percent slopes	450	750	50	100	40	100	2. 5	4. 0	3. 5	5. 5	120	225	150	300
Ruston fine sandy loam, 2 to 5 percent slopes	450	650	50	100	40	100	2. 5	4. 0	3. 5	5. 5	120	225	150	300
Ruston fine sandy loam, 2 to 5 percent slopes, eroded	450	650	50	100	40	100	2. 5	4. 0	3. 5	5. 5	120	225	150	300
Ruston fine sandy loam, 5 to 8 percent slopes	400	550	50	80	40	100	2. 0	3. 5	3. 0	5. 0	110	215	140	290
Ruston fine sandy loam, 5 to 8 percent slopes, eroded							2. 0	3. 5	3. 0	5. 0	110	215	140	290

See footnote at end of table.

TABLE 2.—*Estimated average acre yields of the principal crops under two levels of management, Covington County, Miss.*—Continued

Soil	Cotton		Corn		Oats		Hay				Grazing			
							Millet		Bahiagrass		Bermudagrass and legumes		Bahiagrass and legumes	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lbs.	*Lbs.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Tons*	*Tons*	*Cow-acre-days*[1]	*Cow-acre-days*[1]	*Cow-acre-days*[1]	*Cow-acre-days*[1]
Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded							2.0	3.5	3.0	4.5	90	190	110	210
Ruston fine sandy loam, 8 to 12 percent slopes							2.0	3.5	3.0	4.5	90	190	110	210
Ruston fine sandy loam, 8 to 12 percent slopes, eroded							2.0	3.5	3.0	4.5	90	190	110	210
Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded									2.5	4.0				
Ruston fine sandy loam, 12 to 17 percent slopes									2.5	4.0				
Ruston fine sandy loam, 12 to 17 percent slopes, eroded														
Ruston fine sandy loam, 12 to 17 percent slopes, severely eroded														
Ruston fine sandy loam, 17 to 40 percent slopes														
Ruston fine sandy loam, 17 to 40 percent slopes, eroded														
Ruston fine sandy loam, 17 to 40 percent slopes, severely eroded														
Ruston, Ora, and Cuthbert soils, 5 to 12 percent slopes														
Savannah loam, 0 to 2 percent slopes	400	675	50	80	40	100	2.5	3.0	3.5	4.0	90	175	140	270
Savannah loam, 2 to 5 percent slopes	400	675	50	80	40	100	2.5	3.0	3.5	4.0	90	175	140	270
Savannah loam, 2 to 5 percent slopes, eroded	375	650	50	80	40	100	2.5	3.0	3.5	4.0	90	175	140	270
Savannah loam, 5 to 8 percent slopes	350	600	50	80	40	100	2.5	3.0	3.5	4.0	90	175	140	270
Savannah loam, 5 to 8 percent slopes, eroded	350	600	50	80	40	100	2.5	3.0	3.5	4.0	90	175	140	270
Stough fine sandy loam, 0 to 2 percent slopes	250	425	40	55	30	60	2.5	4.0	2.5	4.5	90	175	105	210
Stough fine sandy loam, 2 to 5 percent slopes	250	425	40	55	30	60	2.5	4.0	2.5	4.5	90	175	105	210
Susquehanna soils, 2 to 5 percent slopes									1.0	1.5	90	190	90	200
Susquehanna soils, 5 to 8 percent slopes									1.0	1.5	90	190	90	200
Susquehanna soils, 8 to 17 percent slopes														
Swamp														
Tilden fine sandy loam, 0 to 2 percent slopes	400	675	50	80	40	100	2.0	3.5	3.5	4.75	100	220	140	270
Tilden fine sandy loam, 2 to 5 percent slopes	400	675	50	80	40	100	2.0	3.5	3.5	4.75	100	220	140	270
Vicksburg silt loam	450	700	80	100	40	90	3.0	5.0	3.5	5.0	120	225	150	300

[1] The term "cow-acre-days" expresses the carrying capacity of pasture. It is the product of the number of days during the year that animals can be grazed without injury to the pasture.

The management practices used to estimate yields in columns B are based on the results of research. For all crops, they include the following:

1. Use of proper kinds and amounts of fertilizer, as indicated by the results of soil tests, field tests, and past cropping and fertilizing practices.
2. Use of high-yielding crop varieties suited to the specific soil and to the climate.
3. Adequate preparation of the seedbed.
4. Seeding by suitable methods, at a suitable rate, and at the right time.
5. Inoculation of legumes.
6. Shallow cultivation of crops.

7. Control of weeds, insects, and diseases.
8. Use of a suitable cropping system, such as those suggested in the section "Management of Soils by Capability Units."
9. Water management, where needed, contour tillage, proper row arrangement, terracing, vegetated waterways and outlets, and contour stripcropping on fields that are suited to stripcropping.
10. Managed rotational grazing.

The defined management used to estimate the yields in columns B also includes the following specific practices for each of the principal crops of the county; the rates given for application of plant nutrients are on a per acre basis.

Cotton.—Cotton is usually grown on soils that are well suited to it. The estimated yields given in columns B for those soils where cotton is grown are based on the use of 60 to 90 pounds of nitrogen, 40 to 60 pounds of phosphorus, and 40 to 60 pounds of potassium. The estimated yields given in columns A are based on the use of 30 to 60 pounds of nitrogen, 30 to 40 pounds of phosphorus, and 30 to 60 pounds of potassium.

Those soils on which the potential yields are estimated at less than three-fourth bale per acre, when good management practices are used, are poorly suited to the production of cotton. Such soils can be used more profitably for other purposes.

Nitrogen is usually supplied in the form of commercial nitrogen, but manure, residues of legumes, or a combination of these may be used.

Corn.—Those soils on which yields of 80 bushels or more per acre are obtained are well suited to corn. The estimated yields given in columns B for those soils are based on the use of 90 to 120 pounds of nitrogen, 40 to 60 pounds of phosphorus, and 40 to 60 pounds of potassium. Enough seed is planted so that the stand will contain 12,000 plants per acre.

Those soils on which yields of 40 to 80 bushels per acre are obtained are fairly well suited to well suited to corn. Yields given in columns A for those soils are based on the use of 45 to 90 pounds of nitrogen, 20 to 40 pounds of phosphorus, and 20 to 40 pounds of potassium. Enough seed is planted so that the stand will contain 8,000 to 10,000 plants per acre.

Soils on which the potential yields are estimated at less than 40 bushels per acre when good management is practiced are poorly suited to corn. Such soils probably can be used more profitably for other crops.

Nitrogen is usually supplied in the form of commercial nitrogen. However, manure, residues of legumes, or a combination of these may be used.

Oats.—On most farms oats are used for grazing and as a grain crop. Where the crop is used for both purposes, a larger amount of fertilizer is needed than if the crop is harvested for grain alone. The estimated yields given in columns B are based on the use of 90 to 120 pounds of nitrogen, 40 to 60 pounds of phosphorus, and 40 to 60 pounds of potassium.

The estimated yields given in columns A are based on the use of 45 to 60 pounds of nitrogen, 20 to 40 pounds of phosphorus, and 20 to 40 pounds of potassium.

A short method of approximating the yield of the oat crop when used for hay is to divide the number of bushels of oats by 31. The result will be the yield of hay in tons. The same result can be obtained by converting the estimated yield of grain from bushels to pounds, and multiplying this figure by 2 (since the weight of straw is approximately equal to the weight of grain). Convert the results to tons by dividing by 2,000.

Ryegrass.—If the kinds and amounts of fertilizer suggested for oats at the B level of management are applied to ryegrass, the ryegrass will provide approximately the same number of cow-acre-days of grazing as the oats.

Temporary pasture.—The estimated yields given in columns B for temporary pasture are based on the use of 132 pounds of nitrogen, 90 pounds of phosphorus, and 60 pounds of potassium. The yields in columns A are obtained if 90 pounds of nitrogen, 60 pounds of phosphorus, and 40 pounds of potassium are applied (fig. 3).

Soils on which the potential yield is estimated to be less than 75 cow-acre-days per acre are poorly suited to temporary pasture. Those soils can be used more profitably for other purposes.

***Figure 3.*—Dairy cattle grazing in a temporary pasture of sorghum on a Ruston fine sandy loam.**

Permanent pasture and forage crops.—The estimated yields in columns B for permanent pasture and forage crops are based on the use of 60 to 100 pounds of nitrogen, 40 to 60 pounds of phosphorus, and 40 to 60 pounds of potassium. All other management practices are the same as those given under the defined management practices used to obtain the estimated yields shown in columns B. The practices under which the estimated yields in columns A were obtained are based on the use of 30 to 60 pounds of nitrogen, 20 to 40 pounds of phosphorus, and 20 to 40 pounds of potassium.

Use of the Soils for Growing Wood Crops[2]

At the time Covington County was organized, in 1819, vast forests of pines and hardwoods covered much of the area. Longleaf pine occupied most of the ridges and up-

[2] JOSEPH V. ZARY, woodland conservationist, Soil Conservation Service, assisted with this section.

lands. White oak, red oak, and shortleaf pine were its principal associates on the ridges. On other parts of the uplands, sweetgum, blackgum, post oak, blackjack oak, black cherry, and hickory were intermingled with loblolly pine and shortleaf pine that grew in extensive stands. Valuable hardwoods grew along the Leaf and Bowie Rivers and along their major tributaries. The principal trees in these stands were hardwoods, such as sweetgum, blackgum, ash, magnolia, bay, red maple, and water oak, but loblolly pine was a common and valuable associate.

The more fertile bottom lands and adjacent benches were cleared for cultivation before the Civil War, but little commercial cutting of timber took place before 1900. Most of the virgin forest was removed between 1910 and 1935. During that time, lumber and crossties were the principal forest products cut, but extensive operations for the production of turpentine were also carried on. Much pine was cut for poles, piling, and structural timbers. These wood products were creosoted and shipped to numerous points throughout the East.

Since 1935 much of the cutover and abandoned agricultural land has reverted to second-growth forests. Longleaf, loblolly, and shortleaf pine, mixed with oak and hickory, reforested most of the uplands. Second-growth hardwoods and loblolly pines have reclaimed the bottom-land sites. This process of natural reforestation was hindered by frequent and widespread forest fires, as well as by uncontrolled grazing. Logging operations during and after World War II resulted in extensive clean cutting and high grading of second-growth stands. During the 15-year period from 1945 through 1959, approximately 212 million board feet of sawtimber and 427 thousand standard cords of pulpwood were cut in this county.

The woodland in the county emerged from this period of exploitation in poor condition. Most of the upland areas were seriously understocked. Young stands of longleaf, loblolly, and shortleaf pine were overtopped by blackjack oak, cull hardwoods, and other worthless trees. Few stands of high-quality pine suitable for sawtimber remained. Valuable species of hardwoods, ideally adapted to bottom-land sites, had largely been crowded out by their more aggressive associates that were of low value. A rank growth of underbrush and vines also competed with these hardwoods. The bottom lands were generally occupied by poor-quality hardwoods of second-rate species. The trunks of these hardwoods were small and of little value.

According to the Conservation Needs Inventory conducted in this county in 1959, there was an urgent and widespread need for conservation treatment of the woodland in the county. The study showed that practices to conserve the woodland were needed on approximately 27,000 acres to establish new areas of woodland and to improve the old ones. These included planting of new stands, underplanting, interplanting, direct seeding, and natural seeding. Intermediate cutting, involving commercial thinning and removal of salvage-sanitation material, was needed on about 75,000 acres. The study also showed that approximately 19,000 acres needed harvesting and that about 21,000 acres required weeding to release a natural stand of seedlings and saplings already established. Weeding was needed, mainly on upland sites where blackjack oak, post oaks, southern red oak, and hickory were suppressing pines of natural origin. To a limited extent, weeding was also needed on bottom-land sites where blue beech, ironwood, elm, and a dense underbrush prevented such valuable bottom-land trees as ash, sweetgum, sycamore, and water oak from becoming established.

According to statistics of the U.S. Forest Service, commercial forest land occupied 149,100 acres in 1957. This means that 5 percent of the land in the county is presently or potentially suitable for growing trees.

Forest Types

A stand of trees that covers a large part of the county may be classed as a forest type on the basis of the kinds and proportions of trees in the stand. A forest type generally is given the name of the tree or trees that are dominant in the stand. Five major forest types are recognized in Covington County. These are loblolly-shortleaf pine, longleaf-slash pine, oak-pine, oak-hickory, and bottom-land hardwood.

In 1957 the commercial forest land in the county consisted of the following forest types and acreages: Of the softwoods, the loblolly-shortleaf pine type occupied 46,600 acres; the longleaf-slash pine type, 11,600 acres; and the oak-pine type, 25,600 acres. Of the hardwoods, the oak-hickory type occupied 35,000 acres, and the bottom-land hardwood type occupied 30,300 acres. The bottom-land hardwood type consisted of two subtypes, the oak-gum-cypress and the elm-ash-cottonwood. The following describes each of these forest types:

Loblolly-shortleaf pine.—This major forest type consists mainly of loblolly pine and shortleaf pine, but in places it includes other southern yellow pines. It does not include longleaf or slash pine. Where the loblolly-shortleaf pine type predominates, 50 percent or more of the stand is loblolly pine and shortleaf pine. These trees grow singly or in combination with oak, hickory, gum, and other common associates.

Longleaf-slash pine.—This major forest type is made up mainly of longleaf pine and slash pine. Where this type predominates, 50 percent or more of the stand is longleaf or slash pine. These trees grow singly or in combination with southern pine, oak, and gum.

Oak-pine.—This major forest type consists mainly of upland oaks, but loblolly and shortleaf pines make up 25 to 49 percent of the stand. Common associates include gum, hickory, and yellow-poplar.

Oak-hickory.—This major forest type is in forests where 50 percent or more of the stand consists of upland oak or hickory. These trees grow singly or in combination. The rest of the stand consists mainly of other hardwoods. Where 50 percent or more of the stand consists of upland oak and hickory, and 25 to 49 percent is pine, the stand is classified as oak-pine. Common associates of the oak-hickory type are yellow-poplar, elm, maple, and black walnut.

Bottom-land hardwoods.—This major forest type consists of two distinct subtypes, namely, the oak-gum-cypress and the elm-ash-cottonwood. The oak-gum-cypress subtype is in forests on bottom lands. In these forests 50

percent or more of the stand consists of tupelo-gum, blackgum, sweetgum, oak, or southern cypress. These trees grow singly or in combination. Where 25 to 49 percent of the stand is pine, the cover type is classified as oak-pine rather than oak-gum-cypress.

The elm-ash-cottonwood subtype is in forests where 50 percent or more of the stand consists of elm, ash, or cottonwood, growing singly or in combination. Common associates include willow, sycamore, beech, and maple.

Yields of Wood Products

Two tables give facts about yields of wood products in this county. Table 3 shows the amount of growing stock and sawtimber in the county in 1957. Approximately two-thirds of the sawtimber cut was hardwoods. Table 4 gives stand and yield information for fully stocked, unmanaged, second-growth stands of loblolly, shortleaf, slash, and longleaf pines. The information for this table was taken from Miscellaneous Publication No. 50, published by the U.S. Department of Agriculture (*6*).[3]

Woodland Suitability Groups

The management of woodland can be planned more easily if the soils are grouped according to those characteristics that affect the growth of trees and the management of the stand. For this reason, the soils of the county have been placed in 11 woodland suitability 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 3.—*Volume of growing stock and of sawtimber in 1957*

Trees	Growing stock	Sawtimber
	Million cu. ft.	*Million bd. ft.*
Pines	15. 5	63. 7
Other softwoods		
Total softwoods	15. 5	63. 7
Cottonwood, sweetgum, yellow-poplar, and other soft hardwoods	29. 0	85. 5
Oaks	10. 4	28. 8
Ash, hickory, sycamore, and other hardwoods	6. 3	23. 3
Total hardwoods	45. 7	137. 6
Total, all species	61. 2	201. 3

Listed in table 5, and later described in the text, are these 11 woodland suitability groups. In table 5 the average site index is given for longleaf pine, loblolly pine, shortleaf pine, and slash pine for each suitability group, and also the hazards and limitations that affect the management of the soils in each group. The terms used in this table require explanation.

[3] Italic numbers in parentheses refer to Literature Cited, p. 85.

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The potential productivity of a soil for a specified kind of tree is expressed as the *site index*. A site index is the average height of the dominant and codominant trees at 50 years of age. For each soil the site index is determined mainly by the capacity of that soil to provide moisture and growing space for tree roots. The site index in table 5 is an average for all the soils in the suitability group.

As shown in table 5, each woodland suitability group has, in varying degree, limitations that affect its management. Some of these limitations are expressed in the relative terms of *slight*, *moderate*, or *severe*. The relative term expresses the degree of limitation, as explained in the following paragraphs:

Plant competition refers to the invasion or growth of undesirable species when a woodland is disturbed by fire, cutting, grazing, or some other means. The invading growth competes with the desirable trees and hinders their establishment and growth. Competition is *slight* if unwanted plants are no special problem. It is *moderate* if the invaders delay, but do not prevent, the establishment of a normal, fully stocked stand. Where plant competition is moderate, preparation of the seedbed is generally not needed, and simple methods can be used to prevent undesirable plants from invading. Competition is *severe* if trees cannot regenerate naturally. Where competition is severe, the site needs to be prepared carefully, and management needs to include practices, such as controlled burning, girdling, and spraying the undesirable plants with chemicals.

Equipment limitation refers to those characteristics of the soils that restrict or prohibit the use of ordinary equipment in pruning, thinning, or harvesting the trees. Drainage, slope, stoniness, and soil texture are some of these characteristics. Different soils may require different kinds of equipment, methods of operation, or seasons when equipment may be used.

The limitation is *slight* if there are no restrictions on the type of equipment or on the time of year that it can be used. It is *moderate* if the slopes are moderately steep, if heavy equipment is restricted by wetness in winter and early in spring, or if the use of equipment damages the tree roots to some extent. Equipment limitation is *severe* if many types of equipment cannot be used, if the time it cannot be used is more than 3 months each year, and if the use of equipment severely damages the roots of trees and the structure and stability of the soil. The limitation is also rated *severe* on bottom lands and low terraces that are wet in winter or early in spring.

Seedling mortality refers to the failure of seedlings to grow in a normal environment after adequate natural seeding has taken place or after suitable seedlings have been planted. Mortality is *slight* if trees ordinarily regenerate naturally in areas where there is sufficient seed, or if no more than 25 percent of the seedlings that are planted die. It is *moderate* if 25 to 50 percent of the seedlings die, or if trees do not regenerate naturally in numbers needed for adequate restocking. In some places replanting to fill open spaces will be necessary. Mortality is *severe* if more than 50 percent of the seedlings that are planted die, or if trees do not ordinarily reseed naturally in places where there is enough seed. If mortality is severe, plant seedlings where the seed does not grow, prepare special seedbeds, and use good methods of planting to insure a full stand of trees.

TABLE 4.—*Stand and yield information per acre for fully stocked, unmanaged, second-growth stands of loblolly, shortleaf, slash, and longleaf pines*

[The absence of a figure indicates that timber of a specified size is not generally processed for lumber. Statistics are compiled from U.S. Department of Agriculture Miscellaneous Publication No. 50(6)]

Site index	Age	Loblolly		Shortleaf		Slash		Longleaf	
		Total volume in a stand 4 inches in diameter or larger at breast height	Total volume in a stand 9 inches in diameter or larger at breast height	Total volume in a stand 4 inches in diameter or larger at breast height	Total volume in a stand 9 inches in diameter or larger at breast height	Total volume in a stand 4 inches in diameter or larger at breast height	Total volume in a stand 9 inches in diameter or larger at breast height	Total volume in a stand 4 inches in diameter or larger at breast height	Total volume in a stand 9 inches in diameter or larger at breast height
		Cords (Rough wood)	*Bd. ft. (Doyle rule)*	*Cords (Rough wood)*	*Bd. ft. (Doyle rule)*	*Cords (Rough wood)*	*Bd. ft. (Doyle rule)*	*Cords (Rough wood)*	*Bd. ft. (Doyle rule)*
60	20	12		12		20		8	
	30	25		32		32		19	
	40	35	1,000	46	1,550	40	500	27	500
	50	41	3,000	54	4,350	45	2,000	34	2,000
	60	46	5,000	60	7,600	48	3,500	40	3,500
	70	49	7,000	65	10,250			45	5,000
	80	51	8,500	68	12,700				
70	20	17		18		28		14	
	30	31	1,000	41	750	40	500	28	
	40	42	3,500	56	4,000	49	2,500	39	2,000
	50	50	6,500	66	8,650	55	5,500	48	4,500
	60	55	10,000	73	12,600	59	7,500	55	7,000
	70	59	12,500	79	16,250			62	9,500
	80	62	15,000	83	19,400				
80	20	22		25		35		20	
	30	38	2,000	48	1,950	48	1,500	36	1,000
	40	51	6,000	65	7,650	58	6,000	49	4,000
	50	60	11,500	77	13,550	65	10,000	61	7,500
	60	66	16,000	85	18,850	69	12,000	70	11,500
	70	70	19,500	92	23,450			78	15,500
	80	73	22,000	97	27,550				
90	20	27		30		41		26	
	30	46	4,000	54	4,550	54	4,000	43	2,000
	40	61	10,000	73	12,600	66	10,000	59	6,500
	50	71	16,500	87	20,450	73	15,000	72	11,500
	60	78	22,000	98	27,400	78	18,000	84	17,000
	70	82	26,000	105	32,850			94	22,500
	80	85	29,000	112	37,400				
100	20	32	500	33	1,050	46	1,000	30	
	30	53	6,000	60	9,050	59	7,000	49	3,500
	40	71	14,500	82	19,400	72	14,500	66	9,000
	50	84	23,000	99	29,500	81	19,500	82	16,000
	60	92	29,500	111	37,250	86	23,000	96	23,000
	70	96	33,000	121	42,950			108	29,500
	80	100	35,500	128	47,200				
110	20	37	1,000					34	
	30	62	9,000					54	5,000
	40	82	20,000					73	12,000
	50	96	29,500					90	20,500
	60	106	36,500					106	29,000
	70	112	40,500					119	36,500
	80	116	43,500						

The windthrow hazard depends on the development of roots and the ability of the soil to anchor trees firmly against the force of the wind. Root development may be hindered by a high water table or by an impermeable layer. The protection of surrounding trees also affects the hazard of windthrow. Knowing the degree of this hazard is important when choosing trees for planting and when planning release cutting or harvest cutting.

The hazard is *slight* if the trees are firmly rooted and will not fall over in a normal wind. Individual trees are likely to remain standing if protection on all sides is removed. The hazard is *moderate* if the development of roots is sufficient to hold trees firmly, except when the soil is excessively wet and the wind is strong. It is *severe* if the roots do not provide enough stability to prevent the trees from blowing over when they are not protected by other trees.

The erosion hazard is rated according to the potential

hazard when the soil is managed according to currently acceptable standards. Woodland can be protected from erosion by adjusting the rotation age and cutting cycles, by using special techniques in management, and by carefully constructing and maintaining roads, trails, and landings.

The erosion hazard is *slight* where a small loss of soil is expected. Generally, erosion is slight if the slope ranges from 0 to 2 percent, and if runoff is slow or very slow. The erosion hazard is *moderate* where there will be a moderate loss of soil material if runoff is not controlled and the cover of vegetation is not adequate for protection. It is *severe* where steep slopes, rapid runoff, slow infiltration, slow permeability, and past erosion make the soil susceptible to severe erosion.

Woodland suitability group 1

In this group are moderately well drained or somewhat poorly drained, medium-textured soils that have a clayey subsoil. These soils are slowly permeable, and their available moisture capacity is moderate to high. The slope ranges from 0 to 17 percent. The soils in this group are—

Boswell silt loam, 2 to 5 percent slopes.
Boswell silt loam, 5 to 8 percent slopes.
Boswell silt loam, 5 to 8 percent slopes, eroded.
Boswell silt loam, 8 to 17 percent slopes.
Boswell, Cuthbert, and Savannah soils, 8 to 17 percent slopes.
Boswell and Savannah soils, 2 to 8 percent slopes.
Falkner silt loam, 0 to 2 percent slopes.
Falkner silt loam, 2 to 5 percent slopes.
Izagora fine sandy loam, 0 to 2 percent slopes.
Susquehanna soils, 2 to 5 percent slopes.
Susquehanna soils, 5 to 8 percent slopes.
Susquehanna soils, 8 to 17 percent slopes.

Competition from other plants is moderate. The competing vegetation may delay natural regeneration of the stand or slow its early growth. Some invasion of scrubby hardwoods can be expected, but competition is not great enough to prevent the desired species from making adequate growth (fig. 4). Special preparation of the site or other treatment is not generally necessary.

***Figure 4.*—A stand of longleaf pine growing on a Susquehanna soil. This is a naturally reproduced stand that is about 20 years old**

TABLE 5.—*Woodland*

Woodland suitability group	Estimated site index for different kinds of pine, given for midslope				Plant competition
	Longleaf	Loblolly	Shortleaf	Slash	
Group 1: Moderately well drained to somewhat poorly drained, clayey soils that have slow to very slow permeability.	65–74	72–88	60–72	----	Moderate
Group 2: Moderately well drained silt loams and fine sandy loams that have a medium-textured to moderately fine textured subsoil over a fragipan.	76–81	78–96	60–70	80–90	Slight to moderate.
Group 3: Poorly drained, medium-textured soils formed in alluvium	----	89–111	----	----	Moderate to severe.
Group 4: Well-drained, medium-textured soils	67–75	74–86	63–72	74–83	Slight to moderate.
Group 5: Poorly drained, medium-textured soils that have a fragipan or a claypan.	----	89–99	----	----	Severe
Group 6: Somewhat excessively drained to excessively drained, coarse-textured soils.	76–86	----	66–74	----	Moderate
Group 7: Somewhat poorly drained, medium-textured soils that have a fragipan.	----	82–100	----	80–90	Moderate
Group 8: Moderately well drained to well drained, medium-textured soils formed in alluvium.	----	91–111	----	----	Moderate
Group 9: Gullied land	----	----	----	----	Slight to severe.
Group 10: Swamp	----	----	----	----	Moderate to severe.
Group 11: Somewhat poorly drained, medium-textured soils formed in alluvium.	----	89–109	----	----	Moderate to severe.

Limitation to the use of equipment is slight to moderate, except on Falkner silt loam, 0 to 2 percent slopes, and on Izagora fine sandy loam, 0 to 2 percent slopes. On these two soils the use of equipment may be delayed from 3 to 4 months during the wet months in winter.

Seedling mortality is slight. No special diseases and insects or other pests are associated with this group of soils.

Windthrow is not a serious hazard. Individual trees can be expected to remain standing when released on all sides.

The hazard of erosion is slight on all of the soils in this group, except Boswell silt loam, 8 to 17 percent slopes, and Susquehanna soils, 8 to 17 percent slopes. On those soils, erosion is a moderate hazard where the soils are not protected. Care should be maintained in locating roads, trails, and landings on the soils that have slopes greater than 8 percent.

Woodland suitability group 2

This group consists of moderately well drained silt loams and fine sandy loams. These soils have a moderately fine textured subsoil that contains a fragipan. Permeability is moderate above the fragipan and very slow in the fragipan. The available moisture capacity is moderate. The slope ranges from 0 to 12 percent. The soils in this group are—

Ora fine sandy loam, 0 to 2 percent slopes.
Ora fine sandy loam, 2 to 5 percent slopes.
Ora fine sandy loam, 2 to 5 percent slopes, eroded.
Ora fine sandy loam, 5 to 8 percent slopes.
Ora fine sandy loam, 5 to 8 percent slopes, eroded.
Ora fine sandy loam, 5 to 8 percent slopes, severely eroded.
Ora fine sandy loam, 8 to 12 percent slopes.
Ora fine sandy loam, 8 to 12 percent slopes, eroded.
Ora silt loam, heavy substratum, 2 to 5 percent slopes.
Ora silt loam, heavy substratum, 2 to 5 percent slopes, eroded.
Ora silt loam, heavy substratum, 5 to 8 percent slopes, eroded.
Prentiss fine sandy loam, 0 to 2 percent slopes.
Prentiss fine sandy loam, 2 to 5 percent slopes.
Providence silt loam, 0 to 2 percent slopes.
Providence silt loam, 2 to 5 percent slopes.
Providence silt loam, 2 to 5 percent slopes, eroded.
Providence silt loam, 5 to 8 percent slopes.
Savannah loam, 0 to 2 percent slopes.
Savannah loam, 2 to 5 percent slopes.
Savannah loam, 2 to 5 percent slopes, eroded.
Savannah loam, 2 to 5 percent slopes.

suitability groupings of soils

Equipment limitation	Seedling mortality	Windthrow hazard	Species priority	Erosion hazard
Predominantly slight to moderate.	Slight	Slight to moderate.	Loblolly, longleaf, and slash pine	Slight to moderate.
Slight	Slight	Slight	Loblolly, longleaf, and slash pine	Slight to moderate.
Severe	Slight	Slight	Loblolly pine, green ash, white ash, bald cypress, red maple, cherrybark oak, laurel oak, Nuttall oak, swamp chestnut oak, water oak, sweetgum, and yellow-poplar.	Slight.
Slight to moderate.	Slight	Slight	Loblolly, longleaf, and slash pine	Slight to severe.
Moderate to severe.	Moderate	Severe	Loblolly pine and sweetgum	Slight.
Slight to severe.	Severe to moderate.	Slight	Longleaf pine	Slight to severe.
Moderate	Slight	Moderate	Loblolly and slash pine	Slight.
Moderate to severe.	Slight	Slight	Loblolly pine, black cherry, eastern cottonwood, hackberry, southern magnolia, red maple, cherrybark oak, laurel oak, Nuttall oak, Shumard oak, southern red oak, swamp chestnut oak, water oak, white oak, willow oak, sweetgum, American sycamore, black tupelo, black walnut, and yellow-poplar.	Slight.
Moderate to severe.	Moderate to severe.	Slight	Loblolly pine	Severe.
Severe	Slight	Slight	Baldcypress, green ash, white ash, water tupelo, and black willow	Slight.
Moderate to severe.	Slight	Slight	Eastern cottonwood, hackberry, southern magnolia, red maple, cherrybark oak, laurel oak, Nuttall oak, Shumard oak, southern red oak, swamp chestnut oak, water oak, white oak, willow oak, common persimmon, sweetgum, American sycamore, black tupelo, black walnut, and yellow-poplar.	Slight.

Savannah loam, 5 to 8 percent slopes, eroded.
Tilden fine sandy loam, 0 to 2 percent slopes.
Tilden fine sandy loam, 2 to 5 percent slopes.

Competition from other plants is slight to moderate. Some invasion of scrub hardwoods and other plants can be expected. These invaders do not prevent an adequate stand of the desired species from becoming established, but they may delay natural regeneration of the stand or slow the early growth of the trees. Special preparation of the site is not generally needed. The desirable species may need to be released from unwanted hardwoods.

Equipment limitation is slight. The use of equipment may be delayed for a few dyas, however, following a heavy rainfall.

Seedling mortality is no special problem on these soils. The stand is restocked satisfactorily by planting or by natural reseeding if a suitable source of seed is available.

No special diseases and insects or other pests are associated with this group of soils. The windthrow hazard is generally slight and causes no management problem, except in some severely eroded areas. In these eroded areas the root zone is restricted because the soil is shallow above the fragipan.

The erosion hazard varies as the result of differences in the slope. It is slight on those soils that have slopes between 0 and 8 percent and moderate on those that have slopes of 8 to 12 percent. On the soils that have slopes greater than 8 percent, care is needed in locating roads and landings.

Woodland suitability group 3

In this woodland suitability group, the only mapping unit is Bibb and Waverly soils. These soils are poorly drained and medium textured, and they formed in alluvium. Permeability is moderate, and the available moisture capacity is moderate to high. The water table is at or near the surface during winter and spring. The soils are subject to frequent flooding for short periods.

These soils are well suited to baldcypress, but they are naturally better suited to hardwoods than to loblolly pine or most other conifers. Open fields that are planted to loblolly pine will generally revert to hardwoods after the

initial planting has been harvested. Suitable hardwoods are green ash, white ash, red maple, cherrybark oak, laurel oak, Nuttall oak, swamp chestnut oak, water oak, sweetgum, and yellow-poplar.

Plant competition is moderate to severe, depending on the management and type of harvesting. In places moderate competition delays natural regeneration and slows the initial growth of the trees. It does not, however, prevent an adequate stand of desirable species from becoming established. Where plant competition is severe, burning, applying chemical sprays, clearing, disking, and using other prescribed methods of preparing the seedbed will help restock the desirable species.

Because of flooding, the use of equipment may be restricted for periods of 3 to 6 months during the winter and spring months.

Seedling mortality is generally slight in areas where there is adequate light, and flooding is not too severe.

The windthrow hazard is slight. During wet periods, however, some trees are likely to be uprooted by abnormally strong winds.

Woodland suitability group 4

This group consists of well-drained, medium-textured soils. Infiltration, permeability, and the available moisture capacity are moderate. The slope ranges from 0 to 40 percent. Runoff is rapid on the slopes greater than 12 percent. The soils in this group are—

Cahaba fine sandy loam, 0 to 2 percent slopes.
Cahaba fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 0 to 2 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes, eroded.
Ruston fine sandy loam, 5 to 8 percent slopes.
Ruston fine sandy loam, 5 to 8 percent slopes, eroded.
Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded.
Ruston fine sandy loam, 8 to 12 percent slopes.
Ruston fine sandy loam, 8 to 12 percent slopes, eroded.
Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded.
Ruston fine sandy loam, 12 to 17 percent slopes.
Ruston fine sandy loam, 12 to 17 percent slopes, eroded.
Ruston fine sandy loam, 12 to 17 percent slopes, severely eroded.
Ruston fine sandy loam, 17 to 40 percent slopes.
Ruston fine sandy loam, 17 to 40 percent slopes, eroded.
Ruston fine sandy loam, 17 to 40 percent slopes, severely eroded.
Ruston, Ora, and Cuthbert soils, 5 to 12 percent slopes.

Plant competition is slight to moderate on the soils of this group. In some areas hardwoods need to be controlled to establish a stand by planting. An adequate stand will restock naturally if there is a good supply of seed, but reproduction and growth may be delayed if plant competition is not controlled.

Limitation on the use of equipment is slight on the soils that have slopes between 0 and 12 percent and moderate on soils that have slopes greater than 12 percent.

In years when the rainfall is well distributed, the loss of planted stock is generally slight and satisfactory restocking is obtained by the first planting. Replanting may be necessary after the drier years.

The windthrow hazard is slight, and there are no problems caused by diseases and insects or other pests.

The erosion hazard is slight to severe, depending on the steepness of the slope. On the soils that have slopes between 0 and 8 percent, the erosion hazard is slight. Soils that have slopes of 8 to 12 percent have a moderate erosion hazard, and those that have slopes between 12 and 40 percent have a severe erosion hazard. On the steeper slopes the location of roads and skid trails is important. If tree-length logging is done, all skidding should be uphill and the butt end of the pole needs to be raised or kept in a skidding pan. If pulpwood sticks are cut in the woods in 5-foot lengths, slides should be used for moving them to loading points.

Woodland suitability group 5

In this group are medium-textured, poorly drained soils that have a fragipan or claypan. Permeability is moderate above the pan and very slow within the pan. The available moisture capacity is low, and the water table is at or near the surface in winter and spring. The soils in this group are—

Henry silt loam.
Leaf silt loam.
Myatt silt loam.

The soils in this group are suited to loblolly pine and sweetgum. Competition from undesirable species is severe, and it often prevents the establishment of a good stand. To help restock the desirable species, the seedbed should be prepared by burning, applying chemical sprays, clearing, disking, or other prescribed methods.

Limitation on the use of equipment is moderate to severe. The use of equipment is restricted because of the long wet periods during the winter and spring.

Seedling mortality is moderate, and natural regeneration does not always provide adequate restocking. Dieback of sweetgum is common, and these trees do not generally grow to maturity. This is probably caused by the limited supply of moisture above the pan.

The windthrow hazard is severe because the soils are shallow over the pan. The hazard of erosion is slight.

Woodland suitability group 6

This group consists of somewhat excessively drained or excessively drained, coarse-textured soils. Permeability is rapid, and the available moisture capacity is low. The slope ranges from 0 to 40 percent. The soils in this group are—

Eustis loamy sand, 2 to 5 percent slopes.
Eustis loamy sand, 5 to 8 percent slopes.
Eustis loamy sand, 8 to 12 percent slopes.
Eustis loamy sand, 12 to 40 percent slopes.
Eustis loamy sand, terrace, 0 to 2 percent slopes.
Eustis and Ruston soils, 12 to 40 percent slopes.
Guin gravelly sandy loam, 8 to 12 percent slopes.
Guin gravelly sandy loam, 12 to 40 percent slopes.
Guin and Saffell gravelly sandy loam, 2 to 8 percent slopes.

Plant competition is moderate, but control of unwanted plants is required if the stand is to be restocked by planting. If an adequate source of seed is available, the soils will restock satisfactorily by natural regeneration. Regeneration and growth may be delayed to some extent, however, if unwanted plants are not controlled.

Equipment limitation is slight, except on Guin gravelly sandy loam, 12 to 40 percent slopes. On that soil the equipment limitation is moderate to severe because of the loose, sandy texture.

Seedling mortality is perhaps the most severe management problem on these sandy and droughty soils. In years when there is normal distribution of rainfall, however, the loss of planted stock is generally less than 25 percent. In

years of drought, the loss of planted stock is much greater, and additional plantings are necessary.

The windthrow hazard is slight and is not considered a management problem. The erosion hazard is slight on the soils that have slopes of less than 12 percent. On the soils that have slopes of 12 to 40 percent, the erosion hazard is moderate to severe. Generally, roads and landings can be located, however, on the more nearly level areas.

Woodland suitability group 7

This group consists of somewhat poorly drained, medium-textured soils that have a fragipan. Permeability is moderate above the fragipan and very slow within the pan. The available moisture capacity is moderate to low. The slope ranges from 0 to 5 percent. The soils in this group are—

Bude silt loam, 0 to 2 percent slopes.
Bude silt loam, 2 to 5 percent slopes.
Bude silt loam, 2 to 5 percent slopes, eroded.
Pheba loam, 0 to 2 percent slopes.
Pheba loam, 2 to 5 percent slopes.
Stough fine sandy loam, 0 to 2 percent slopes.
Stough fine sandy loam, 2 to 5 percent slopes.

Plant competition is moderate. It does not prevent desirable species from becoming established (fig. 5), but in many places it delays natural regeneration and slows the initial growth of trees.

The use of equipment is limited during the wet months in winter and spring.

In years of normal rainfall, the loss of planted stock is less than 25 percent, and satisfactory restocking can be obtained by the first planting. In years of low rainfall, the loss of planted stock is much greater, and additional plantings are needed to fill the openings. Diseases and insects or other pests do not present problems associated with this group of soils.

The windthrow hazard is moderate because the root zone is restricted by the fragipan. The fragipan also causes excessive wetness. Because these soils are nearly level to gently sloping, erosion is generally not a hazard.

***Figure 5.*—A stand of pine on a Pheba soil. The young pines are growing under the seed trees.**

Woodland suitability group 8

This group consists of well drained or moderately well drained, medium-textured soils formed in alluvium. Permeability and the available moisture capacity are moderate. These soils are subject to frequent overflow during the winter and spring. The soils in this group are—

Collins and Iuka soils.
Collins and Iuka soils, local alluvium.
Ochlockonee fine sandy loam.
Ochlockonee soils, local alluvium.
Ochlockonee, Mantachie, and Iuka soils.
Vicksburg silt loam.

These soils are naturally better suited to hardwoods than to loblolly pine. Open fields that are planted to loblolly pine will, in general, revert to hardwoods after the initial planting has been harvested. Suitable hardwoods are black cherry, eastern cottonwood, hackberry, southern magnolia, red maple, cherrybark oak, laurel oak, Nuttall oak, Shumard oak, southern red oak, swamp chestnut oak, water oak, white oak, sweetgum, American sycamore, black tupelo, and yellow-poplar.

Plant competition does not prevent desirable species from becoming established. It often delays natural regeneration, however, and slows the initial growth of the trees.

The use of equipment may be restricted for 1 to 4 months because of flooding. Seedling mortality is generally slight where there is adequate light and flooding is not too severe.

Windthrow is not a serious hazard. Individual trees can be expected to remain standing when released on all sides. Cutting can be done without future loss by windthrow, but some loss can be expected from abnormally high winds. Diseases and insects or other pests do not present a problem.

Woodland suitability group 9

In this group is only one miscellaneous land type, Gullied land. It consists of severely eroded, strongly sloping to steep soils that are on uplands of the Coastal Plain. In most of the areas, all of the surface layer and much of the subsoil have been lost through erosion. In small areas, however, some of the soils have retained much of their surface layer.

These areas of Gullied land once consisted of deep, well-drained soils, but these soils are now severely eroded. As a result, surface runoff has increased, and infiltration, the capacity for available moisture, fertility, and the content of organic matter have decreased.

The gullied areas and severely eroded ridgetops are better suited to pine than to other kinds of trees. Plant competition is slight to severe. In places moderate competition delays natural regeneration and slows the initial growth of trees. However, it does not prevent an adequate stand of desirable species from becoming established. Some areas that were abandoned because of erosion are overgrown with vines, briers, shrubs, and scrub hardwoods that are of no commercial value. Where plant competition is severe, burning, disking, clearing, applying chemical sprays, and using other prescribed methods of preparing the seedbed will help restock the desirable species.

The equipment limitation ranges from moderate to severe, depending upon the steepness of slopes and depth of gullies.

Seedling mortality is moderate to severe. Plans should be made at the time of planting to interplant openings and skips the third year. In many of the galled and gullied areas, mulching is needed.

The hazard of windthrow is generally slight. Thinning can be done without future loss, but some loss can be expected from abnormally high winds.

The erosion hazard is severe. Location of roads and skid trails, as well as the type of equipment used, are important. If tree-length logging is done, all skidding should be up hill, and the butt end of the pole should be raised or kept in a skidding pan. If pulpwood sticks are cut in the woods, in 5-foot lengths, slides should be used for moving them to loading points. Because of the hazard of erosion, there should be a minimum of soil disturbance.

Woodland suitability group 10

In this group is only one miscellaneous land type, Swamp. It is medium textured or moderately fine textured and is very poorly drained. This land type is on first bottoms, in depressions, and in former stream channels. It is flooded frequently, and water stands above the surface much of the time. Permeability is very slow to moderate, and the supply of moisture is good to excessive.

Pine trees do not normally grow on this land type, but baldcypress is well suited. Suitable hardwoods are green ash, water tupelo, and black willow.

Plant competition is moderate to severe, depending upon the management and type of harvest. In places moderate competition delays natural regeneration and slows the initial growth of the trees. It does not, however, prevent an adequate stand of desirable trees from becoming established. Where plant competition is severe, burning, applying chemical sprays, clearing, disking, and using other prescribed methods of preparing the seedbed will help restock the desirable species.

The use of equipment is severely limited because water stands above or near the surface during much of the year. In some places control of drainage is needed before a site can be utilized fully. Outlets are not always available, however, and the cost of constructing suitable outlets is high.

Loss of seedlings is slight, and satisfactory restocking of adapted trees is generally obtained from the first planting. If an adequate source of seed is available where plant competition is not severe, a satisfactory stand of trees is obtained by natural regeneration.

Windthrow is not a serious hazard. Individual trees will remain standing when released on all sides. Cutting can be done without future loss, but some loss can be expected from abnormally high winds.

Woodland suitability group 11

The only mapping unit in this group is Mantachie and Falaya soils. The soils are somewhat poorly drained and medium textured, and they formed in alluvium. Permeability is moderate, and the available moisture capacity is moderate to high. The water table is on or near the surface during the winter and spring. The soils are subject to frequent flooding for short periods.

These soils are better suited to hardwoods than to other kinds of trees. Open fields that are planted to loblolly

pine will revert to hardwoods after the initial planting has been harvested. Suitable hardwoods are eastern cottonwood, hackberry, southern magnolia, red maple, cherrybark oak, laurel oak, Nuttall oak, Shumard oak, southern red oak, swamp chestnut oak, water oak, white oak, willow oak, common persimmon, sweetgum, American sycamore, black tupelo, black walnut, and yellow-poplar.

Plant competition is moderate to severe. Moderate competition does not prevent desirable species from becoming established, but it often delays natural regeneration and slows the initial growth of the trees. Where competition is severe, burning, applying chemical sprays, clearing, disking, and using other prescribed methods of preparing the seedbed will help restock the desirable species.

The use of equipment may be restricted for periods of 1 to 4 months during the winter and spring because of wetness and flooding.

Seedling mortality is generally slight in areas where there is adequate light and flooding is not too severe.

The windthrow hazard is slight, but during wet periods some trees are likely to be uprooted by abnormally strong winds.

Use of the Soils for Woodland Range[4]

This section gives facts about woodland range in Covington County. It describes the various range sites and gives practices that will improve the range.

Woodland Range Sites

The soils of this county are grouped into six woodland range sites to help range operators make the best use of their rangeland. Range sites are kinds of rangeland that differ from each other in their ability to produce a significantly different kind or amount of climax, or original, vegetation. Each of the soils in a given site will support about the same kinds and amounts of native plants.

The combination of plants that originally grew on each range site before the area was disturbed by grazing or fire is called the climax vegetation. The climax vegetation is generally the most productive combination of plants that will grow on a given site. On each site the native vegetation consists of three classes of plants—decreasers, increasers, and invaders. Decreasers and increasers are climax plants. Decreasers are the most heavily grazed of the plants on the range site, and they are the first to disappear as the result of overgazing. Increasers withstand grazing better than the decreasers, or they are less palatable to livestock. Therefore, they increase and replace the decreasers. Invaders are plants that become established after the climax vegetation has been reduced by grazing. At the time this report was written, the vegetation in most parts of the county consisted almost entirely of increasers and invaders.

The most important decreasers in this county are pinehill bluestem, switchgrass, and tickclover. The principal increasers are low panicum, grassleaf goldaster, three-awn, and cutover muhly.

[4] DOUGLAS E. POST, woodland conservationist, Soil Conservation Service, assisted with this section.

Coastal Plain Hills (Level to Gently Undulating)

This range site consists of medium-textured to fine-textured, level to gently undulating soils that formed in unconsolidated beds of sand, silt, and clay of the Coastal Plain. These are mainly well drained and moderately well drained soils. Infiltration is moderate, the movement of water through the soils is moderate to slow, and the available moisture capacity is moderate to high. The soils are low in natural fertility and in content of organic matter. They are strongly acid or very strongly acid. Runoff is slow to medium, and there is little or no hazard of erosion. The following soils are in this range site:

Boswell silt loam, 2 to 5 percent slopes.
Boswell silt loam, 5 to 8 percent slopes.
Boswell silt loam, 5 to 8 percent slopes, eroded.
Boswell and Savannah soils, 2 to 8 percent slopes.
Cahaba fine sandy loam, 0 to 2 percent slopes.
Cahaba fine sandy loam, 2 to 5 percent slopes.
Izagora fine sandy loam, 0 to 2 percent slopes.
Ora fine sandy loam, 0 to 2 percent slopes.
Ora fine sandy loam, 2 to 5 percent slopes.
Ora fine sandy loam, 2 to 5 percent slopes, eroded.
Ora fine sandy loam, 5 to 8 percent slopes.
Ora fine sandy loam, 5 to 8 percent slopes, eroded.
Ora silt loam, heavy substratum, 2 to 5 percent slopes.
Ora silt loam, heavy substratum, 2 to 5 percent slopes, eroded.
Ora silt loam, heavy substratum, 5 to 8 percent slopes, eroded.
Prentiss fine sandy loam, 0 to 2 percent slopes.
Prentiss fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 0 to 2 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes, eroded.
Ruston fine sandy loam, 5 to 8 percent slopes.
Ruston fine sandy loam, 5 to 8 percent slopes, eroded.
Savannah loam, 0 to 2 percent slopes.
Savannah loam, 2 to 5 percent slopes.
Savannah loam, 2 to 5 percent slopes, eroded.
Savannah loam, 5 to 8 percent slopes.
Savannah loam, 5 to 8 percent slopes, eroded.
Susquehanna soils, 5 to 8 percent slopes.
Tilden fine sandy loam, 0 to 2 percent slopes.
Tilden fine sandy loam, 2 to 5 percent slopes.

The stand on this range site is pines mixed with hardwoods. The hardwoods are scrubby and of poor quality, except those that grow on the deep soils along drainageways and low terraces. Loblolly, shortleaf, and longleaf pines are well suited to this site. The understory consists of shrubs, chiefly blueberry, gallberry, waxmyrtle, yaupon, and beautyberry. Some of these are domestic shrubs that have replaced the original brush.

The original ground cover was largely pinehill bluestem, little and big bluestem mixed with some switchgrass, grassleaf goldaster, low panicum, and tickclover. Fire and overgrazing have changed the original ground cover. Big bluestem has been almost eliminated, as annual weeds and wiregrasses, such as three-awn, slender bluestem, and broomsedge, have increased over most of the area.

The optimum production on this range site is about 3,000 pounds of forage per acre annually if there is no overstory. The best season for grazing is normally from April to July. Since cattle tend to overgraze in spots, such practices as building an adequate number of stock ponds and locating them properly, using cross-fencing, spacing the location of salt blocks carefully, and using minerals and feed to supplement the supply of forage, result in a better distribution of grazing. Suitable areas for constructing stock ponds are fairly abundant on this site.

Alluvial Land

This range site consists of medium-textured to fine-textured soils formed in material washed from the uplands. The drainage is variable. Natural fertility is low to moderate, and the available moisture capacity is moderately high. The content of organic matter is low to moderate. These soils are strongly acid. They are nearly level, and as a result, runoff is slow. Most of these soils are flooded several times a year. The following soils are in this range site:

Bibb and Waverly soils.
Collins and Iuka soils.
Collins and Iuka soils, local alluvium.
Mantachie and Falaya soils.
Ochlockonee fine sandy loam.
Ochlockonee soils, local alluvium.
Ochlockonee, Mantachie, and Iuka soils.
Swamp.
Vicksburg silt loam.

This site supports a stand of mixed hardwoods. Most of these soils are better suited to hardwoods than to pines. Open fields that are planted to loblolly pine generally revert to hardwoods after the initial planting has been harvested.

The understory consists of American hornbeam, hophornbeam, planertree, swamp privet, hawthorn, and buttonbush. Rushes, sedges, and grasses make up the ground cover. Because hardwood seedlings are damaged by the browsing of cattle, this site should not be grazed.

Coastal Plain Hills (Steep)

This range site consists mainly of steep, medium-textured to fine-textured soils that formed in unconsolidated beds of sand, silt, and clay of the Coastal Plain. Infiltration is moderate, and the movement of water through the soil is moderate to slow. The available moisture capacity is moderate. These soils are low in natural fertility and in content of organic matter. They are strongly acid. The soils range from strongly sloping to steep. Runoff is rapid to medium; plants must rely largely on the moisture from summer showers for growth. Erosion is severe to slight or none. The following soils are in this range site:

Boswell silt loam, 8 to 17 percent slopes.
Boswell, Cuthbert, and Savannah soils, 8 to 17 percent slopes.
Ora fine sandy loam, 5 to 8 percent slopes, severely eroded.
Ora fine sandy loam, 8 to 12 percent slopes.
Ora fine sandy loam, 8 to 12 percent slopes, eroded.
Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded.
Ruston fine sandy loam, 8 to 12 percene slopes.
Ruston fine sandy loam, 8 to 12 percent slopes, eroded.
Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded.
Ruston fine sandy loam, 12 to 17 percent slopes.
Ruston fine sandy loam, 12 to 17 percent slopes, eroded.
Ruston fine sandy loam, 12 to 17 percent slopes, severely eroded.
Ruston fine sandy loam, 17 to 40 percent slopes.
Ruston fine sandy loam, 17 to 40 percent slopes, eroded.
Ruston fine sandy loam, 17 to 40 percent slopes, severely eroded.
Ruston, Ora, and Cuthbert soils, 5 to 12 percent slopes.
Susquehanna soils, 8 to 17 percent slopes.

Pines mixed with some scrub hardwoods grow on this site. Some areas along the draws and lower slopes are fairly good for hardwoods. Loblolly, shortleaf, and longleaf pines are well suited to these soils. The shrubs that make up the understory are chiefly blueberry, gallberry, waxmyrtle, yaupon, and beautyberry. Some of these are domestic shrubs that have escaped and have replaced the original brush.

The original ground cover was largely pinehill bluestem and little and big bluestem mixed with some switchgrass, grassleaf goldaster, low panicum, and tickclover. Fire and overgrazing have changed the original ground cover. Big bluestem has been almost eliminated, as annual weeds and wiregrasses, such as three-awn, slender bluestem, and broomsedge have increased over most of the area.

The optimum production on this range site is about 2,500 pounds of forage per acre annually if there is no overstory. The best season for grazing is normally from April to September. Cattle naturally tend to overgraze in spots. Building an adequate number of stock ponds and locating them properly, using cross-fencing, spacing the location of salt blocks carefully, and using minerals and feed to supplement the supply of forage, results in an even distribution of grazing. Suitable areas for the construction of stock ponds are fairly common in this range site. They are located at the heads of draws.

Coastal Plain Hills (Sandy and Gravelly)

This range site consists of coarse-textured, gently sloping to very steep soils that formed in unconsolidated sand and gravel of the Coastal Plain. The soils are mainly somewhat excessively drained. Infiltration and the movement of water through the soils are moderate to rapid. The available moisture capacity is low. These soils are low in natural fertility and in content of organic matter. They are strongly acid. Because of the high rate of infiltration, runoff tends to be slow. Erosion ranges from none to slight. The following soils are in this range site:

Eustis loamy sand, 2 to 5 percent slopes.
Eustis loamy sand, 5 to 8 percent slopes.
Eustis loamy sand, 8 to 12 percent slopes.
Eustis loamy sand, 12 to 40 percent slopes.
Eustis loamy sand, terrace, 0 to 2 percent slopes.
Eustis and Ruston soils, 12 to 40 percent slopes.
Guin gravelly sandy loam, 8 to 12 percent slopes.
Guin gravelly sandy loam, 12 to 40 percent slopes.
Guin and Saffell gravelly sandy loams, 2 to 8 percent slopes.

The original overstory consisted mainly of longleaf pine mixed with some shortleaf and loblolly pine and some scrub oak. The present overstory is mainly shortleaf pine, loblolly pine, and scrub oak. Sweetgum grows on the lower parts of slopes. The shrubs in the understory originally included blueberry and palmetto.

The original ground cover was mainly pinehill bluestem and little bluestem. Because of overgrazing and fire, slender bluestem and perennial three-awn have replaced some of the better grasses.

The optimum production on this range site is about 2,000 pounds of air-dried forage per acre annually if there is no overstory. The best season for grazing is normally from April to August. Since cattle tend to overgraze some spots, such practices as building an adequate number of stock ponds and locating them properly, using cross-fencing, spacing the location of salt blocks carefully, and supplementing the supply of forage by adding minerals and feed, result in a more even distribution of grazing. Suitable areas for constructing stock ponds are fairly hard to locate; however, there are areas in the upper parts of drainageways and draws where the soil is nearly impermeable. These places are suitable for the impoundment of water.

Ducks require a wetland habitat. Some of their choice foods are acorns, beechnuts, browntop millet, corn, Japanese millet, and smartweed.

Nongame birds live in a number of kinds of habitats. There are many species of these birds. Their requirements for food and cover vary according to the species. Some eat nothing but insects, a few eat insects and fruits, and several other species combine insects with acorns, nuts, and fruits.

Coastal Plain Hills (Wetlands)

This range site consists of wet, medium-textured to fine-textured soils that formed in unconsolidated beds of sand, silt, and clay of the Coastal Plain. The soils are poorly drained and somewhat poorly drained, and infiltration is moderate to slow. The movement of water through the soils is generally slow, and the available moisture capacity is moderate to high. The soils are low in natural fertility and in content of organic matter. They are strongly acid to very strongly acid. In this range site the soils are nearly level or gently sloping. Runoff is generally slow to medium. Some of the soils are not eroded, but in others erosion has been moderate. The following soils are in this site:

Leaf silt loam.
Myatt silt loam.
Pheba loam, 0 to 2 percent slopes.
Pheba loam, 2 to 5 percent slopes.
Stough fine sandy loam, 0 to 2 percent slopes.
Stough fine sandy loam, 2 to 5 percent slopes.
Susquehanna soils, 2 to 5 percent slopes.
Susquehanna soils, 5 to 8 percent slopes.

The original overstory consisted of pines and hardwoods. Loblolly pine is well suited to this site. At present, because of repeated high grading and unrestricted grazing, the hardwoods on much of this site are of poor quality. The original understory consisted of shrubs, chiefly waxmyrtle, gallberry, common buttonbush, and poison-ivy. Many fires have increased the density of the understory. The ground cover was originally switchcane and herbaceous plants that tolerate shade. Overuse has reduced the abundance of switchcane and has allowed the herbaceous plants to increase.

The optimum production on this site is about 3,300 pounds of air-dried forage per acre annually if there is no overstory. The best season for grazing is normally from April to October. Cattle naturally tend to overgraze. Building an adequate number of stock ponds and locating them properly, using cross-fencing, spacing the location of salt blocks carefully, and using minerals and feed to supplement the supply of forage, result in a better distribution of grazing.

Loess Hills

This range site consists of gently sloping to strongly sloping, moderately fine textured soils that formed in a thin mantle of loess over sediments of the Coastal Plain. These are mainly somewhat poorly drained and moderately well drained soils. The available moisture capacity is moderate to high. The soils are low to moderate in natural fertility, low in content of organic matter, and strongly acid. Runoff is generally slow, but it is medium on the more strongly sloping areas. The hazard of erosion is generally slight, but, it is moderate in a few places. The following soils are in this range site:

Bude silt loam, 0 to 2 percent slopes.
Bude silt loam, 2 to 5 percent slopes.
Bude silt loam, 2 to 5 percent slopes, eroded.
Falkner silt loam, 0 to 2 percent slopes.
Falkner silt loam, 2 to 5 percent slopes.
Henry silt loam.
Providence silt loam, 0 to 2 percent slopes.
Providence silt loam, 2 to 5 percent slopes.
Providence silt loam, 2 to 5 percent slopes, eroded.
Providence silt loam, 5 to 8 percent slopes.

The original overstory consisted mainly of pine on the upper and middle parts of the slopes and of pine and hardwoods on the lower parts. Now, loblolly and shortleaf pines are predominant. Oaks are more numerous than other kinds of hardwoods, but the stand contains some yellow-poplar, sweetgum, magnolia, and beech.

The shrubs in the understory included gallberry, gooseberry, white myrtle, yaupon, and beautyberry. The original ground cover was mainly big bluestem, pinehill bluestem, little bluestem, switchgrass, and Indiangrass. Overgrazing and wildfire have allowed cutover muhly, slender bluestem, low panicum, and perennial three-awn to increase over most of the area.

The optimum production on this site is about 3,800 pounds of air-dried forage per acre annually if there is no overstory. The best season for grazing is normally from April to September. Cattle naturally tend to overgraze. Building an adequate number of stock ponds and locating them properly, using cross-fencing, spacing the location of salt blocks carefully, and using minerals and feed to supplement the supply of forage result in an even distribution of grazing.

Use of the Soils for Wildlife and Fish[5]

This section gives information about the different kinds of wildlife in Covington County. It also describes the requirements of the different species and discusses the soils and plants in the three general areas in the county according to their suitability and management for wildlife.

Wildlife Resources

All of the soils in the county are suited to one or more species of wildlife that are common in the State. The number and kinds of wildlife in an area depend on the land use. Some species are adapted to open farmland, others to woodland, and still others to wetland or marsh. Most need a combination of different environments to be abundant.

Farm game species—bobwhite quail, doves, and rabbits—are the most common species. They are present in all the soil associations where there is open land and where some form of agriculture is practiced.

Woodland game—squirrels and deer—thrive best in wooded areas where part of the timber stand consists of hardwoods. The best areas for these species are the bottom lands of the Leaf River and of Bowie and Okatoma Creeks. There is also a similar environment along some of the smaller creeks and drainageways. Waterfowl are of minor importance, but there are limited numbers on lakes, ponds, and beaver ponds throughout the county.

[5] EDWARD G. SULLIVAN, biologist, Soil Conservation Service, assisted with this section.

Requirements of Wildlife Species

Bobwhite quail need open and semiopen areas. They should have food available near sheltering vegetation to provide protection from predators and adverse weather. Suitable food and cover for quail are found primarily in areas where row crops are grown extensively. Their choice foods are acorns, beechnuts, blackberries, browntop millet, black cherries, corn, cowpeas, flowering dogwood, bicolor, Kobe, Korean, and common lespedeza, the seeds of pine and sweetgum, mulberries, partridgepeas, ragweed, soybeans, and tickclover. Quail also eat insects.

Doves require water daily. For feeding, they also need open fields that have a thick ground cover. Choice foods for doves are browntop millet, corn, woolly croton, grain sorghum, several kinds of panicgrass, pokeberry, ragweed, sunflower, wheat, and the seeds of pine and sweetgum.

Rabbits require some plant cover. Plants that provide good cover for rabbits are blackberry, multiflora rose, sericea lespedeza, and other low-growing brush, shrubs, and annual weeds. Rabbits eat grass, grain, clover, and bark.

Squirrels require wooded areas that range from a few acres to tracts that are somewhat larger. The stand must contain hardwoods. Their choice foods are acorns, beechnuts, the seeds of blackgum, maple, and pine, black cherries, corn, dogwood, hickory nuts, mulberries, and pecans.

Deer require 500 acres or more of woodland and a supply of water. They eat many different kinds of plants, including acorns, clover, corn, cowpeas, greenbrier, honeysuckle, oats, fescuegrass, ryegrass, and wheat.

Ducks require a wetland habitat. Some of their choice foods are acorns, beechnuts, browntop millet, corn, Japanese millet, and smartweed.

Nongame birds live in a number of kinds of habitats. There are many species of these birds. Their requirements for food and cover vary according to the species. Some eat nothing but insects, a few eat insects and fruits, and several other species combine insects with acorns, nuts, and fruits.

The principal game fish in ponds and streams are bass, bluegill and other kinds of sunfish, and channel catfish. Bluegill and other kinds of sunfish eat aquatic worms, insects, and insect larvae. Bass and catfish eat small fish, frogs, crayfish, and other kinds of aquatic animals and microscopic plants. The amount of food and fish produced in ponds is related to the fertility of the soils in the watershed and in the bottom of the pond. Most ponds need fertilizer and lime to yield a good supply of fish.

Wildlife Suitability Areas

Most wildlife species are indirectly related to the kinds of soils because they require certain kinds of plant associations. These plant associations are related directly to a particular soil or group of soils. To improve the habitats for wildlife and to increase the number of species of small game animals and birds on farms, encourage plants that provide a natural supply of food and cover. Choice foods should also be planted where needed.

The suitability and management of soils and plants for wildlife are discussed under three general soil areas, called soil associations. Area 1, the Ruston-Ora-Savannah association, and Area 2, the Providence-Bude association, are discussed together because they are similar in suitability for plants that can be used as food or cover for wildlife. Area 3, the Bibb-Myatt-Ocklockonee association, is discussed separately. More complete information about these associations is given in the section "General Soil Map."

Areas 1 and 2.—Area 1, the Ruston-Ora-Savannah association, is on uplands that have been cut by many permanent and intermittent streams. The ridgetops are mostly broad and gently sloping with steep sides. Area 2, the Providence-Bude association, occupies broad, nearly level to gently sloping ridges. Many small, permanent and intermittent streams are also in this association, and the valleys range from narrow to rather wide. Many small general farms, where cotton, corn, small grains, and hay are grown, occupy the broad ridges in these two associations, and there are a number of livestock farms.

Areas 1 and 2 are well suited to many kinds of small animals and birds that live on farms and to fish that live in ponds. The areas of open land and small wooded tracts on most farms are particularly well suited to quail and rabbits. Native foods for quail, as lespedeza, partridgepea, and tickclover, grow well on the soils in these areas. Cultivated foods suitable for quail, such as cowpeas, browntop millet, and bicolor lespedeza, can be grown on most of the soils. Acorns from oaks that grow along the edges of fields and streams also supplement the food supply.

Plants that provide the natural cover required by rabbits, such as sericea lespedeza, multiflora rose, and several kinds of shrubs, are adapted to the soils in Areas 1 and 2. Browntop millet provides food for doves and grows well in these areas. Also, the many fields of corn and grain sorghum provide food for these birds after the harvest.

Squirrels are the primary species of woodland game in Areas 1 and 2, but there are a few deer on the larger wooded tracts. Such trees as oak, hickory, maple, black cherry, mulberry, and beech, which grow along streams and along the heads of drainageways, should be maintained in the stand to supply food for squirrels.

The soils and topography of Areas 1 and 2 are well suited to fish ponds. If a large number of fish are to be produced and weeds controlled, the ponds need regular fertilization.

Because of the topography, these areas are limited in their potential for the development of habitats for ducks.

Area 3.—This area, the Bibb-Myatt-Ochlockonee association, is well suited to several kinds of birds and animals that prefer woodland, but it is less well suited to farm game. The area is well suited to hardwood trees and shrubs, and as a result, the population of squirrels and deer is generally high. Some parts of Area 3, where there is open land not subject to frequent flooding, are suited to some species of farm game animals and birds. Swamp rabbits and cottontail rabbits are present in Area 3. They require cover in pastures and fields. Most of the plant foods suitable for quail are also adapted to these soils. Because of the large areas of woodland in Area 3, the quail population is lower than in Areas 1 and 2.

To some extent, habitats for ducks can be developed along the stream bottoms in Area 3 where the supply of water is abundant. These areas of fairly level land are suitable for low levees and flooding. Browntop millet and Japanese millet, which are well adapted to these soils, will provide an adequate supply of food.

Fish ponds and lakes are limited in Area 3 because of the topography and the frequent overflow from streams.

Use of Soils for Engineering[6]

The soil survey of Covington County, Miss., contains information useful in highway and foundation engineering, agricultural engineering, and sanitary engineering. The information can be used by engineers to—

(1) Make soil and land use studies that will aid in the selection and development of industrial, business, residential, and recreational sites.
(2) Make reconnaissance surveys of soil and ground conditions that will aid in selecting sites for highways and airports and in planning detailed soil surveys of their intended locations.
(3) Locate sources of sand and gravel.
(4) Correlate pavement performance with types of soil and thus develop information that will be useful in designing and maintaining pavements.
(5) Determine the suitability of soils for cross-country movement of vehicles and construction equipment.
(6) Estimate the nature of materials encountered when excavating for buildings and other structures.
(7) Make preliminary estimates of the engineering properties of soils in planning agricultural drainage systems, farm ponds, irrigation systems, and diversion terraces.
(8) Determine the suitability of soils for septic tank and sewage disposal systems.
(9) Supplement information obtained from other published maps, reports, and aerial photographs for the purpose of making soil maps and reports that will be more useful to engineers.

It is not intended that this report will eliminate the need for on-site sampling and testing for design and construction of specific engineering works or for other uses. This report should be used primarily in planning more detailed field investigations to determine the condition of soil material in place at the proposed site for engineering work.

This section contains three tables. Table 6 gives test data for six representative soil profiles from Covington County. Table 7 gives a brief description of the soils and their estimated physical properties. Table 8 gives estimates of the suitability of the soils for construction and conservation engineering.

In addition to the information given in the tables, much information useful to engineers can be found in other parts of this report, particularly in the sections "General Soil Map," "How Soils Are Mapped and Classified," "Description of Soils," and "Formation, Morphology, and Classification of Soils." Some of the terms used by the soil scientist may be unfamiliar to the engineer, and some terms have a special meaning in soil science. These terms are defined in the Glossary at the back of this report.

Engineering Classification Systems

Most highway engineers classify soil materials according to the system approved by the American Association of State Highway Officials (AASHO). In this system soil materials are classified in seven principal groups. The groups range from A–1, which is gravelly soil of high bearing capacity, to A–7, which consists of clay soils of low strength when wet.

Within each group, the relative engineering value of the soil material is indicated by the group index number. The range of the group index number is from 0, for the best material, to 20, for the poorest. The group index number is shown in parentheses following the soil group symbol in the next to the last column of table 6.

Some engineers prefer to use the Unified soil classification system. This system identifies the soils according to their texture and plasticity and groups them according to their performance as engineering construction material. It establishes 15 soil groups, which are divided as (1) coarse-grained soils (eight classes), (2) fine-grained soils (six classes), and (3) highly organic soils. The last column in table 6 gives the classification of the tested soils according to this system.

Soil Test Data

Engineers have tested some of the soil material in this county and have observed its behavior in engineering structures. Results of these tests are given in table 6.

Each soil was sampled to a depth of about 6 feet. The test data show some variations in the characteristics of these soils, but they probably do not show the entire range of variations in the lower horizons. The data, therefore, may not be adequate for estimating the characteristics of soil material in deep cuts or in rolling areas.

The engineering classifications in table 6 are based on data obtained by mechanical analysis and by tests to determine liquid limit and plastic limit. Mechanical analyses were made by the combined hydrometer and sieve methods. The grain size used by engineers differs from that used by soil scientists; therefore, the percentage of clay given should not be used in naming textural classes of soils.

The tests for liquid limit and plastic 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 solid to a semisolid, or plastic, state. As the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material passes from a semisolid to a plastic state. The liquid limit is the moisture content at which the soil material passes from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is in a plastic condition.

Table 6 also gives compaction (moisture density) data for the tested soils. If a soil material is compacted at a successively higher moisture content, assuming that the compactive effort remains constant, the density of the compacted material will increase until the optimum moisture content is reached. After that, the density decreases as the content of moisture is increased.

The highest dry density obtained in the compaction test is called maximum dry density. Moisture density data are important in earthwork, for 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.

[6] PAUL A. CALHOUN, agricultural engineer, Soil Conservation Service, assisted with this section.

TABLE 6.—*Engineering test data*[1] *for soil samples taken*

Soil name and location	Parent material	Mississippi report No.	Depth	Horizon	Moisture-density[2]	
					Maximum dry density	Optimum moisture
			Inches		*Lb. per cu. ft.*	*Percent*
Providence silt loam:						
Sec. 8, T. 9 N., R. 17 W.	Thin loess underlain by Coastal Plain material.	393696	10–22	B2	106	18
		393697	22–32	B3m	111	16
		393698	32–70	D	100	21
Sec. 27, T. 9 N., R. 17 W.	Thin loess underlain by Coastal Plain material.	393699	4–18	B2	108	16
		393700	18–30	B3m	109	16
		393701	30–72	D	104	20
Ruston fine sandy loam:						
Sec. 11, T. 8 N., R. 15 W.	Coastal Plain sandy material	393704	13–32	B21 and B22	118	13
		393705	42–72	C	125	10
Sec. 6, T. 7 N., R. 14 W.	Gulf Coastal Plain sediments	393706	14–28	B2	124	10
		393707	32–69	C	112	10
Susquehanna fine sandy loam:						
Sec. 35, T. 6 N., R. 15 W.	Gulf Coastal Plain sediments	393702	8–60	C	91	27
Susquehanna silt loam:						
Sec. 25, T. 8 N., R. 16 W.	Gulf Coastal Plain sediments	393703	12–60	C1 and C2	99	23

[1] Tests performed by Mississippi State Highway Department in accordance with standard procedures of the American Association of State Highway Officials (AASHO).

[2] Based on the "Moisture-Density Relations of Soils Using a 5.5-lb. Rammer and a 12-in. Drop." AASHO Designation: T 99–57, Method A (*1*).

[3] Mechanical analyses according to the American Association of State Highway Officials Designation T 88. Results by this procedure frequently may differ somewhat from results that would have been 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 material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes of soils.

Engineering Properties of Soils

To make the best use of the soil maps and soil survey reports, the engineer needs to know some of the physical and chemical properties of the soil materials and the in-place condition of the soil. Soil test data for a few soils and estimates of physical and chemical properties of the rest are given in table 7. This information is useful in developing design recommendations for the soil units delineated on the soil map. The estimated properties are based on the results of laboratory tests and on observations made in the field. They are also based on experience with the behavior of the soils when used in engineering structures. The estimates apply only to the soils of Covington County.

Permeability of the soil in inches per hour was estimated for the soils in place. The estimates were based on soil structure, on porosity, and on tests for permeability of undisturbed cores of similar soil material.

The available water capacity in inches per inch of soil depth is the approximate amount of water available to plants. It is the numerical difference between the percentage of water at field capacity (approximated by one-third atmosphere moisture percentage for silty and clayey soils and one-tenth atmosphere for sandy soils) and the percentage of water at the time plants wilt (approximately 15 atmospheres moisture percentage).

The shrink-swell potential indicates the change in volume to be expected of the soil material with changes in moisture content. This potential is based on tests for volume change or on observations of the properties of the soils. For example, soils high in montmorillonite clay, such as the Sharkey soils mapped in nearby counties, are very sticky when wet, and they develop extensive shrinkage cracks when dry. Hence, they have a very high shrink-swell potential. In contrast, the material in the subsoil of other soils is sandy, structureless (single grain), and nonplastic. Therefore, it has a low shrink-swell potential.

The soils formed in medium-textured Coastal Plain material and loessal material generally have low to moderate shrink-swell potential, moderate to moderately slow permeability, and a moderate to high dispersion rate. They are well drained to poorly drained.

Soils formed in coarse-textured material have low shrink-swell potential, rapid to very rapid permeability, and a high dispersion rate. They are well drained to excessively drained.

from six soil profiles in Covington County, Miss.

Mechanical analysis [3]									Classification	
Shrinkage factors			Percentage passing sieve—			Percentage smaller than—	Liquid limit	Plasticity index	AASHO [4]	Unified [5]
Limit	Ratio	Volumetric change	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.005 mm.				
		Percent								
6	1. 70	45	100	99	89	36	44	23	A–7–6(14)	CL.
14	1. 75	46	100	99	82	33	41	23	A–7–6(13)	CL.
17	1. 71	57	100	99	84	49	52	30	A–7–6(18)	MH–CH. [6]
19	1. 55	43	100	99	86	47	43	25	A–7–6(15)	ML–CL.
17	1. 74	45	100	99	84	36	43	26	A–7–6(15)	ML–CL.
16	1. 74	47	100	99	82	38	44	22	A–7–6(14)	CL.
13	1. 84	26	100	97	56	24	29	14	A–6–(6)	CL.
13	1. 83	9	100	96	35	13	18	5	A–2–4(0)	SM–SC.
12	1. 85	13	100	96	43	16	20	7	A–4(2)	SC.
----------	----------	----------	100	91	14	6	17	(7)	A–2–4(0)	SM.
8	1. 91	133	100	99	93	70	79	56	A–7–6(20)	CH.
10	1. 91	106	----------	100	98	57	65	49	A–7–6(20)	CH.

[4] Based on "Standard Specifications for Highway Materials and Methods of Sampling and Testing" (Pt. 1, Ed. 8): "The Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes." AASHO Designation: M 145–49 (*1*).

[5] Based on the Unified Soil Classification System. Tech. Memo. No. 3–357, v. 1. Waterways Expt. Sta., Corps of Engin., March 1953 (*9*).

[6] Soil Conservation Service and Bureau of Public Roads have agreed to consider that all soils having plasticity indexes within 2 points from A-line be given a borderline classification.

[7] Nonplastic.

The soils formed in fine-textured material have a moderate to high shrink-swell potential, slow to very slow permeability, and a low dispersion rate. They are moderately well drained to poorly drained.

Engineering Interpretations

Table 8 lists the principal soils of this county. It also gives a brief description of characteristics that affect the suitability of the soils as sites for highways or for soil and water conservation projects. The information given in this table is based partly on estimates and partly on data obtained by testing soil material from typical soils of this county and other counties that have similar soils.

Many of the soils in this county are a good source of foundation material for subgrades. Some contain material suitable for subbase material to be used immediately below the pavement.

Because of flooding and a high water table, earthwork for highway construction on soils formed in recent alluvium is restricted to the summer and fall months. In the upland part of the county, construction work is generally discontinued from December to April, because of rain. If work is done during that period, erosion is likely to occur. High fills should be benched to provide protection from erosion. All ditches and gutters require protection by sod, pavement, or check dams.

Soils of the bottom lands and those that contain a fragipan need special preparation for a roadbed. Where the fragipan is close to the surface, it should be removed and replaced with more permeable material. Where it is below the roadbed, underdrains placed between the fragipan and the roadbed may be adequate.

Some of the soils have a high or perched water table. On these soils, seepage in the back slopes of cuts may result in slumping or sliding of the overlying material. A high water table may also reduce the bearing capacity of the foundation material and cause deterioration of the pavement. Underdrains or inteceptor ditches can be used to remove subsurface water before it causes demage.

Generally, no difficulty is encountered with foundations for one-story frame, brick, or stone buildings on most of the soils. The Susquehanna and Boswell soils are not good foundation material for buildings. These soils swell and shrink upon wetting and drying; consequently, brick or stone structures may crack unless precautions are taken in constructing the foundations. On these soils, samples of foundation material should be tested and foundations constructed accordingly. The Susquehanna, Boswell, and similar soils are slowly permeable; therefore, they are not suitable for disposal fields for septic tanks.

TABLE 7.—*Brief description of the soils of Covington*

Symbol on map	Soil name	Description of soil and site	Depth from surface
			Inches
Bb	Bibb and Waverly soils.	Stratified silt loam, silty clay loam, sandy clay loam, and fine sandy loam; formed in recent alluvium on the flood plains of streams; subject to local flooding.	0–15 15–34 34–46 46–57
BoB	Boswell silt loam, 2 to 5 percent slopes.	3 to 6 inches of silt loam or fine sandy loam over plastic clay; formed in Coastal Plain sediments.	0–5 5–23 23–60
BoC	Boswell silt loam, 5 to 8 percent slopes.		
BoC2	Boswell silt loam, 5 to 8 percent slopes, eroded.		
BoD	Boswell silt loam, 8 to 17 percent slopes.		
BrD	Boswell, Cuthbert, and Savannah soils, 8 to 17 percent slopes.		
BsC	Boswell and Savannah soils, 2 to 8 percent slopes.		
BuA	Bude silt loam, 0 to 2 percent slopes.	6 inches of silt loam over approximately 12 inches of silty clay loam; underlain by about 18 to 30 inches of compact silt loam that overlies Coastal Plain silty clay loam to clay.	0–6 6–18 18–48 48–60
BuB	Bude silt loam, 2 to 5 percent slopes.		
BuB2	Bude silt loam, 2 to 5 percent slopes, eroded.		
CaA	Cahaba fine sandy loam, 0 to 2 percent slopes.	6 to 12 inches of fine sandy loam over about 24 inches of loam; underlain by fine sandy loam; formed in stratified material on stream terraces.	0–6 6–11 11–37 37–60
CaB	Cahaba fine sandy loam, 2 to 5 percent slopes.		
Co	Collins and Iuka soils.	Soils that formed in a thin layer of loess and that have a surface layer and subsoil of silt loam; also areas of stratified silt loam, loam, and fine sandy loam formed in recent alluvium of Coastal Plain origin.	0–8 8–36 36–52 52–60
Cu	Collins and Iuka soils, local alluvium.		
EsB	Eustis loamy sand, 2 to 5 percent slopes.	Loamy sands on stream terraces; formed in sandy Coastal Plain material; the depth ranges from 6 to 10 feet.	0–28 28–93
EsC	Eustis loamy sand, 5 to 8 percent slopes.		
EsD	Eustis loamy sand, 8 to 12 percent slopes.		
EsF	Eustis loamy sand, 12 to 40 percent slopes.		
EuF	Eustis and Ruston soils, 12 to 40 percent slopes.		
EtA	Eustis loamy sand, terrace, 0 to 2 percent slopes.	Fine loamy sand and sand formed in Coastal Plain material; the depth ranges from 6 to 10 feet or more.	0–6 6–10 10–50
FaA	Falkner silt loam, 0 to 2 percent slopes.	14 to 20 inches of silt loam over Coastal Plain clays.	0–3 3–12 12–16 16–37
FaB	Falkner silt loam, 2 to 5 percent slopes.		
GgD	Guin gravelly sandy loam, 8 to 12 percent slopes.	5 to 8 inches of gravelly fine sandy loam; underlain by gravelly sandy loam or gravelly sandy clay loam that overlies gravelly loam or sandy loam.	0–8 8–12 12–26 26–36
GgF	Guin gravelly sandy loam, 12 to 40 percent slopes.		
GsC	Guin and Saffell gravelly sandy loams, 2 to 8 percent slopes.		
Gu	Gullied land.	Coastal Plain sands to clays.	(3)
Hn	Henry silt loam.	6 inches of silt loam over compact silt loam; underlain by gleyed silty clay loam to clay; formed in a thin mantle of loess over Coastal Plain clays.	0–6 6–20 20–26 26–34 34–61
IzA	Izagora fine sandy loam, 0 to 2 percent slopes.	Fine sandy loam over loam underlain by clay loam over clay; formed on stream terraces in old alluvium of Coastal Plain origin; the depth to mottled material is 14 to 24 inches.	0–8 8–11 11–18 18–55

See footnotes at end of table.

County, Miss., and their estimated physical and chemical properties

Classification			Percentage passing sieve [1]		Permeability	Available water capacity	Reaction	Structure	Shrink-swell potential
USDA texture	Unified	AASHO	No. 10	No. 200					
					Inches per hour	*Inches per inch*	*pH*		
Silt loam	ML–CL	A–4 to A–6	100	85	0. 80–2. 50	0. 14	5. 1–5. 5	Crumb	Low.
Silty clay loam	ML or CL	A–6	100	85	0. 05–0. 20	. 14	5. 1–5. 5	Massive	Moderate.
Sandy clay loam	CL	A–4	100	60	0. 05–0. 20	. 15	5. 1–5. 5	Massive	Low.
Fine sandy loam	SC or SM	A–4	100	45	0. 80–2. 50	. 14	5. 1–5. 5	Massive	Low.
Silt loam	CL or ML	A–4	100	85	0. 80–2. 50	1. 15	4. 5–5. 0	Crumb	Low.
Clay	CH	A–7	100	85	0. 05–0. 20	. 21	4. 5–5. 0	Subangular	High.
Clay	CH	A–7	100	85	0. 05–0. 20	. 21	4. 5–5. 0	Blocky	High.
Silt loam	ML or CL	A–4 to A–6	100	83	0. 80–2. 50	. 26	4. 5–5. 0	Crumb	Low.
Silty clay loam	CL	A–6	100	98	0. 20–0. 80	. 28	4. 5–5. 0	Blocky	Moderate.
Silt loam	ML or CL	A–4	100	93	[2]	. 06	4. 5–5. 0	Massive	Low.
Silty clay or clay	MH, CL, CH	A–7	100	80	0. 02–0. 20	. 22	4. 5–5. 0	Massive	Moderate to high.
Fine sandy loam	SM–SC	A–4	99	45	2. 50–5. 00	. 13	5. 1–5. 5	Granular	Low.
Fine sandy loam	SM–SC or SC	A–4	99	45	2. 50–5. 00	. 15	5. 1–5. 5	Blocky	Low.
Loam	ML–CL	A–4 or A–6	99	70	0. 80–2. 50	. 14	5. 1–5. 5	Blocky	Low.
Fine sandy loam	SM–SC or SC	A–2 or A–4	99	35	2. 50–5. 00	. 15	5. 1–5. 5	Massive	Low.
Silt loam	ML–CL	A–4	100	85	0. 80–2. 50	. 22	5. 1–5. 5	Crumb	Low.
Silt loam or fine sandy loam.	ML–CL	A–4	100	65	0. 80–2. 50	. 25	5. 1–5. 5	Massive	Low.
Loam or silt loam	CL	A–4	100	70	0. 20–0. 80	. 20	5. 1–5. 5	Massive	Low.
Silt loam or fine sandy loam.	ML or CL; SM–SC.	A–4	100	65	0. 20–0. 80	. 20	5. 1–5. 5	Massive	Low.
Loamy sand	SM	A–2	100	15	5. 00–10. 0	. 07	4. 5–5. 0	Single grain	Low.
Loamy sand	SP–SM	A–2 to A–3	100	5	5. 00–10. 0	. 06	4. 5–5. 0	Single grain	Low.
Loamy sand	SM	A–2	100	15	5. 00–10. 0	. 06	5. 1–5. 0	Single grain	Low.
Loamy fine sand	SM	A–2	100	25	5. 00–10. 0	. 07	5. 1–5. 5	Single grain	Low.
Loamy sand	SM	A–2	100	15	5. 00–10. 0	. 06	5. 1–5. 0	Single grain	Low.
Silt loam	ML or CL	A–6 or A–4	100	85	0. 80–2. 50	. 25	5. 1–5. 5	Crumb	Low.
Silt loam	ML or CL	A–6 or A–4	100	80	0. 80–2. 50	. 27	5. 1–5. 5	Blocky	Low.
Silty clay loam	CL	A–6	100	90	0. 20–0. 80	. 20	5. 1–5. 5	Blocky	Moderate.
Clay	CH	A–7	100	95	0. 05–0. 20	. 20	5. 1–5. 5	Massive	High.
Gravelly fine sandy loam.	GM or SM	A–1	30	25	2. 50–5. 00	. 10	5. 1–5. 5	Crumb	Low.
Gravelly sandy loam	GM or SM	A–1 or A–2	40	15	2. 50–5. 00	. 08	5. 1–5. 5	Blocky	Low.
Gravelly sandy clay loam.	GC	A–2	40	30	0. 80–2. 50	. 07	5. 1–5. 5	Blocky	Low.
Loamy coarse sand	SW–SP	A–1	30	10	5. 00–10. 0	. 30	5. 1–5. 5	Single grain	Low.
[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3].
Silt loam	ML–CL	A–6	100	95	0. 80–2. 50	. 25	4. 5–5. 0	Crumb	Low.
Silt loam	ML–CL	A–6	100	95	0. 80–2. 50	. 20	4. 5–5. 0	Crumb	Low.
Slity clay loam	ML–CL	A–6 or A–7	100	98	0. 05–0. 20	. 08	4. 5–5. 0	Blocky	Moderate.
Silty clay loam	CL	A–7	100	98	----------	--------	4. 5–5. 0	Blocky	Moderate.
Clay	MH–CH	A–7	100	98	----------	--------	4. 5–5. 0	Massive	High.
Fine sandy loam	SM–SC	A–4	100	45	0. 80–2. 50	. 14	5. 1–5. 5	Granular	Low.
Loam	CL	A–4	100	70	0. 80–2. 50	. 17	5. 1–5. 5	Granular	Low.
Clay loam	CL	A–6	100	80	0. 80–2. 50	. 18	5. 1–5. 5	Blocky	Moderate.
Clay	CH	A–7	100	98	0. 20–0. 80	. 20	5. 1–5. 5	Massive	High.

TABLE 7.—*Brief description of the soils of Covington County,*

Symbol on map	Soil name	Description of soil and site	Depth from surface
			Inches
Lf	Leaf silt loam.	Silt loam over sandy clay loam and clay; formed on stream terraces in old alluvium of Coastal Plain origin.	0–10 10–16 16–30 30–50
Mf	Mantachie and Falaya soils.	Stratified silt loam formed in recent alluvium of Coastal Plain and loessal origin; subject to overflow.	0–27 27–60
My	Myatt silt loam.	Silt loam over silty clay loam and silty clay; formed on stream terraces in old alluvium of Coastal Plain origin.	0–6 6–17 17–35 35–50
Oc Oh Om	Ochlockonee fine sandy loam. Ochlockonee soils, local alluvium. Ochlockonee, Mantachie, and Iuka soils.	Stratified fine sandy loam, sandy loam, and loamy sand; formed in recent alluvium on the flood plains of streams.	0–10 10–38 38–60 60+
OrA OrB OrB2 OrC OrC2 OrC3 OrD OrD2	Ora fine sandy loam, 0 to 2 percent slopes. Ora fine sandy loam, 2 to 5 percent slopes. Ora fine sandy loam, 2 to 5 percent slopes eroded. Ora fine sandy loam, 5 to 8 percent slopes. Ora fine sandy loam, 5 to 8 percent slopes, eroded. Ora fine sandy loam, 5 to 8 percent slopes, severely eroded. Ora fine sandy loam, 8 to 12 percent slopes. Ora fine sandy loam, 8 to 12 percent slopes, eroded.	4 to 6 inches of fine sandy loam over about 18 inches of loam or clay loam; underlain by compact sandy loam that overlies sandy loam or clay loam; formed in sandy Coastal Plain material on uplands.	0–6 6–25 25–48 48–60
OsB OsB2 OsC2	Ora silt loam, heavy substratum, 2 to 5 percent slopes. Ora silt loam, heavy substratum, 2 to 5 percent slopes, eroded. Ora silt loam, heavy substratum, 5 to 8 percent slopes, eroded.	4 to 8 inches of silt loam over about 18 inches of silty clay loam; contains a fragipan that is underlain by silty clay or clay.	0–6 6–29 29–53 53–72
PhA PhB	Pheba loam, 0 to 2 percent slopes. Pheba loam, 2 to 5 percent slopes.	4 to 6 inches of loam over loam or clay loam; underlain by compact loam or fine sandy loam that overlies loam or clay loam; formed in sandy Coastal Plain material on uplands.	0–6 6–17 17–37 37–60
PnA PnB	Prentiss fine sandy loam, 0 to 2 percent slopes. Prentiss fine sandy loam, 2 to 5 percent slopes.	Stratified fine sandy loam, loam, and clay loam; formed on stream terraces in old alluvium of the Coastal Plain.	0–7 7–10 10–23 23–37 37–55
PrA PrB PrB2 PrC	Providence silt loam, 0 to 2 percent slopes. Providence silt loam, 2 to 5 percent slopes. Providence silt loam, 2 to 5 percent slopes, eroded. Providence silt loam, 5 to 8 percent slopes.	4 to 5 inches of silt loam over 18 to 30 inches of silty clay loam; underlain by compact silty clay loam that overlies Coastal Plain silty clay loam to clay; formed in a thin layer of loess over Coastal Plain material on uplands.	0–6 6–10 10–22 22–30 30–60
RsA RsB RsB2 RsC RsC2 RsC3 RsD RsD2 RsD3 RsE	Ruston fine sandy loam, 0 to 2 percent slopes. Ruston fine sandy loam, 2 to 5 percent slopes. Ruston fine sandy loam, 2 to 5 percent slopes, eroded. Ruston fine sandy loam, 5 to 8 percent slopes. Ruston fine sandy loam, 5 to 8 percent slopes, eroded. Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded. Ruston fine sandy loam, 8 to 12 percent slopes. Ruston fine sandy loam, 8 to 12 percent slopes, eroded. Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded. Ruston fine sandy loam, 12 to 17 percent slopes.	4 to 6 inches of fine sandy loam over 1 to 1½ feet of loam or clay loam; underlain by fine sandy loam to sandy loam; formed in sandy Coastal Plain material on uplands.	0–4 4–12 12–28 28–70

See footnotes at end of table.

Miss., and their estimated physical and chemical properties—Continued

Classification			Percentage passing sieve [1]		Permeability	Available water capacity	Reaction	Structure	Shrink-swell potential
USDA texture	Unified	AASHO	No. 10	No. 200					
					Inches per hour	*Inches per inch*	*pH*		
Silt loam	ML or CL	A–4	100	85	0. 80–2. 50	0. 14	4. 5–5. 0	Granular	Low.
Silty clay loam	CL	A–4	100	95	0. 20–0. 80	. 17	4. 5–5. 5	Blocky	Low.
Clay	CH	A–7	100	98	0. 20–0. 80	. 20	4. 5–5. 0	Blocky	High.
Clay	CH	A–7	100	98	0. 20–0. 80	. 21	4. 5–5. 0	Blocky	High.
Silt loam	ML–CL	A–4 to A–6	100	80	0. 80–2. 50	. 20	5. 1–5. 5	Crumb	Low.
Silt loam	ML–CL	A–4 to A–6	100	80	0. 20–0. 80	. 20	5. 1–5. 5	Massive	Low.
Silt loam	ML–CL	A–4 or A–6	100	85	0. 80–2. 50	. 18	5. 1–5. 5	Crumb	Low.
Silt loam	ML–CL	A–4 or A–6	100	85	0. 20–0. 80	. 18	5. 1–5. 5	Blocky	Low.
Silty clay loam	CL	A–6	100	93	0. 05–0. 20	. 06	5. 1–5. 5	Blocky	Moderate.
Silty clay	CL–CH	A–7	100	98	0. 20–0. 80	. 20	5. 1–5. 5	Blocky	Moderate to high.
Fine sandy loam	SM–SC	A–4	100	45	0. 80–2. 50	. 14	5. 1–5. 5	Granular	Low.
Sandy loam	SM–SC	A–4	100	45	2. 50–5. 00	. 12	5. 1–5. 5	Massive	Low.
Loam	ML–CL	A–4	100	70	0. 80–2. 50	. 15	5. 1–5. 5	Massive	Low.
Loamy sand	SM	A–2	100	15	5. 00–10. 0	07	5. 1–5. 5	Single grain	Low.
Fine sandy loam	SM–SC	A–4	100	45	0. 30–2. 50	. 13	4. 5–5. 0	Crumb	Low.
Clay loam	CL	A–7 or A–6	100	75	0. 20–0. 80	. 16	4. 5–5. 0	Blocky	Moderate.
Sandy loam	SM–SC	A–4	100	35	0. 05–0. 20	. 06	4. 5–5. 0	Massive	Low.
Sandy loam or clay loam.	SM–SC to CL.	A–6	100	50	2. 50–5. 00	. 14	4. 5–5. 0	Massive	Low.
Silt loam	ML–CL	A–4	100	85	0. 80–2. 50	. 20	4. 5–5. 0	Crumb	Low.
Silty clay loam	CL	A–6	100	90	0. 80–2. 50	. 23	4. 5–5. 0	Blocky	Moderate.
Loam	CL	A–6	100	75	0. 05–0. 20	. 06	4. 5–5. 0	Massive	Low to moderate.
Silty clay	CH	A–7	100	95	0. 05–0. 20	. 20	4. 5–5. 0	Blocky	Moderate to high.
Fine sandy loam	SM–SC	A–2	100	35	0. 80–2. 50	. 13	5. 1–5. 5	Crumb	Low.
Silty clay loam	CL	A–6	100	90	0. 20–0. 80	. 14	5. 1–5. 5	Blocky	Moderate.
Loam	ML–CL	A–4	100	70	0. 05–0. 20	. 12	5. 1–5. 5	Blocky	Low.
Loam	ML–CL	A–4	100	70	0. 20–0. 80	. 16	5. 1–5. 5	Blocky	Low.
Fine sandy loam	SM–SC	A–2	100	35	0. 80–2. 50	. 13	5. 1–5. 5	Crumb	Low.
Silt loam	ML–CL	A–4	100	85	0. 80–2. 50	. 14	5. 1–5. 5	Crumb	Low.
Loam	ML–CL	A–4	100	70	0. 80–2. 50	. 18	5. 1–5. 5	Blocky	Low.
Silty clay loam or loam.	CL to CH	A–6 or A–7	100	85–98	0. 80–2. 50	. 06	5. 1–5. 5	Massive	Moderate to high.
Fine sandy loam	SM–SC	A–4	100	45	0. 80–2. 50	. 14	5. 1–5. 5	Massive	Low.
Silt loam	ML–CL	A–4	100	90	0. 80–2. 50	. 20	4. 59–5. 0	Crumb	Low.
Silt loam	ML–CL	A–6	100	86	0. 80–2. 50	. 30	4. 5–5. 0	Blocky	Moderate.
Silty clay loam	ML–CL	A–7	100	89	0. 80–2. 50	. 30	4. 5–5. 0	Blocky	Moderate.
Silty clay loam	ML–CL	A–7	100	82	0. 05–0. 20	. 10	4. 5–5. 0	Blocky	Moderate.
Silty clay	MH–CH	A–7	100	84	0. 20–0. 80	. 20	4. 5	Blocky	High.
Fine sandy loam	SM–SC	A–4	100	45	2. 50–5. 00	. 13	4. 5–5. 0	Granular	Low.
Loam	CL	A–4	100	70	2. 50–5. 00	. 16	5. 1–5. 5	Blocky	Low.
Loam or clay loam	SC–CL	A–4, A–6	100	50	0. 80–2. 50	. 16	4. 5–5. 0	Blocky	Low.
Sandy loam	SM–SC	A–2	100	35	2. 50–5. 00	. 10	4. 5–5. 0	Single grain	Low.

TABLE 7.—*Brief description of the soils of Covington County,*

Symbol on map	Soil name	Description of soil and site	Depth from surface
			Inches
RsE2	Ruston fine sandy loam, 12 to 17 percent slopes, eroded.		
RsE3	Ruston fine sandy loam, 12 to 17 percent slopes, severely eroded.		
RsF	Ruston fine sandy loam, 17 to 40 percent slopes.		
RsF2	Ruston fine sandy loam, 17 to 40 percent slopes, eroded.		
RsF3	Ruston fine sandy loam, 17 to 40 percent slopes, severely eroded.		
RuC	Ruston, Ora, and Cuthbert soils, 5 to 12 percent slopes.		
SbA	Savannah loam, 0 to 2 percent slopes.	6 inches of loam over about 12 to 18 inches of loam or clay loam; underlain by about 12 inches of compact loam that overlies loam or sandy loam; formed in sandy Coastal Plain material, on uplands.	0–7
SbB	Savannah loam, 2 to 5 percent slopes.		7–26
SbB2	Savannah loam, 2 to 5 percent slopes, eroded.		26–38
SbC	Savannah loam, 5 to 8 percent slopes.		38–60
SbC2	Savannah loam, 5 to 8 percent slopes, eroded.		
StA	Stough fine sandy loam, 0 to 2 percent slopes.	Fine sandy loam over loam; underlain by clay loam; formed on stream terraces in old alluvium of Coastal Plain origin.	0–11
StB	Stough fine sandy loam, 2 to 5 percent slopes.		11–25
			25–37
			37–60
SuB	Susquehanna soils, 2 to 5 percent slopes.	3 to 6 inches of silt loam or fine sandy loam over plastic clay that is 5 to 10 feet or more thick; formed in Coastal Plain clay on hills.	3–9
SuC	Susquehanna soils, 5 to 8 percent slopes.		9–24
SuD	Susquehanna soils, 8 to 17 percent slopes.		24–60
Sw	Swamp.	About 12 inches of silt loam to sandy loam over clayey material.	0–12
			12–48
TdA	Tilden fine sandy loam, 0 to 2 percent slopes.	3 to 6 inches of fine sandy loam over silt loam or clay loam; underlain by compact loam or fine sandy loam that overlies fine sandy loam and sandy loam; formed on stream terraces in old alluvium of Coastal Plain origin.	0–5
TdB	Tilden fine sandy loam, 2 to 5 percent slopes.		5–8
			8–26
			26–56
			56–68
Vc	Vicksburg silt loam.	Stratified silt loam formed in recent alluvium of loessal origin on the flood plains of streams.	0–6
			6–48
			48–60

[1] The following are the percentages of material passing the No. 4 sieve in the Guin soils: 65 percent in the layer between 0 and 8 inches; 70 percent in the layer between 8 and 12 inches; and 50 percent in the layer between 12 and 18 inches. In the Guin and Saffell complex, 50 percent of the material passes a No. 4 sieve in the layer between 26 and 36 inches.

Miss., and their estimated physical and chemical properties—Continued

Classification			Percentage passing sieve [1]		Permeability	Available water capacity	Reaction	Structure	Shrink-swell potential
USDA texture	Unified	AASHO	No. 10	No. 200					
					Inches per hour	*Inches per inch*	*pH*		
Loam	ML–CL	A–4 or A–6	100	70	0. 80–2. 50	0. 16	5. 1–5. 0	Crumb	Low.
Loam	ML–CL	A–4 or A–6	100	70	0. 80–2. 50	. 18	5. 1–5. 5	Blocky	Low.
Loam	ML–CL	A–4 or A–6	100	70	0. 05–0. 20	. 06	5. 1–5. 5	Blocky	Low.
Loam	ML–CL	A–4 or A–6	100	70	0. 80–2. 50	. 18	5. 1–5. 5	Massive	Low.
Fine sandy loam	SM–SC	A–2	100	35	0. 80–2. 50	. 19	5. 1–5. 5	Granular	Low.
Loam	ML–CL	A–4	100	75	0. 20–0. 80	. 16	5. 1–5. 5	Blocky	Low.
Loam	ML–CL	A–4	100	70	0. 05–0. 20	. 06	5. 1–5. 5	Blocky	Low.
Loam	ML–CL	A–4	100	70	0. 20–0. 80	. 15	5. 1–5. 5	Massive	Low.
Silt loam	ML–CL	A–6	100	85	0. 20–0. 80	. 18	4. 5–5. 0	Crumb	Low.
Clay	CH	A–7	100	93	0. 05–0. 20	. 21	4. 5–5. 0	Blocky	High.
Clay	CH	A–7	100	93	0. 05–0. 20	. 22	5. 1–5. 5	Massive	High.
Clay [3]									
Clay [3]	CH [3]	A–7	100	90–100	0. 05–0. 20	. 22	([3])	Massive	High.
Fine sandy loam	SM–SC	A–4	100	45	0. 80–2. 50	. 15	5. 1–5. 5	Granular	Low.
Silt loam	ML–CL	A–4	100	85	0. 80–2. 50	. 18	5. 1–5. 5	Blocky	Low.
Loam	ML–CL	A–4	100	70	0. 80–2. 50	. 16	5. 1–5. 5	Blocky	Low.
Fine sandy loam	SM–SC	A–4	100	45	0. 05–0. 20	. 06	5. 1–5. 5	Platy or massive.	Low.
Sandy loam	SM–SC	A–4	100	45	0. 80–2. 50	. 14	5. 1–5. 5	Massive	Low.
Silt loam	ML–CL	A–4 to A–6	100	83	0. 80–2. 50	. 25	5. 1–5. 5	Crumb	Low.
Silt loam	ML–CL	A–4 to A–7	100	83	0. 80–2. 50	. 28	5. 1–5. 5	Massive	Low to moderate.
Silt loam	ML–CL	A–4 to A–6	100	83	0. 80–2. 50	. 26	5. 1–5. 5	Massive	Low.

[2] Less than 0.05 percent.
[3] Variable.

TABLE 8.—*Interpretation*

Soil series and map symbol	Suitability as source of—				Soil features affecting engineering practices—	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Bibb and Waverly (Bb)	Poor	Poor	Poor	Fair to poor	Frequent flooding and poor drainage; soil properties fair to good.	Fairly stable; not well suited to shells.
Boswell[1] (BoB, BoC, BoC2, BoD, BsC, BrD).	Unsuited	Unsuited	Unsuited	Unsuited	Plastic material; high shrink-swell potential.	Stable on flat slopes; use in cores and blankets.
Bude (BuA, BuB, BuB2).	Poor	Unsuited	Unsuited	Poor to fair	High water table; fragipan impedes drainage.	Slopes erode easily; use in cores; poor to fair.
Cahaba (CaA, CaB)	Good	Fair	Poor	Good	Good properties except for possible flooding.	Fairly stable; not particularly well suited to shells.
Collins and Iuka soils (Co, Cu).	Fair to good	Unsuited	Unsuited	Fair	Seasonally high water table; occasional flooding.	Fairly stable on flat slopes.
Eustis[2] (EsB, EsC, EsD, EsF, EtA, EuF).	Fair	Good	Poor	Fair to good	Soil properties favorable.	Poor stability; excessive seepage.
Falkner (FaA, FaB)	Unsuited	Unsuited	Unsuited	Poor to unsuited.	Plastic clay subsoil; high shrink-swell potential.	Stable on gentle slopes; use in cores and blankets.
Guin gravelly sandy loam (GgD, GgF).	Poor	Fair to good	Good	Good	Soil properties good	Not well suited; excessive seepage.
Guin and Saffell gravelly sandy loams (GsC).	Poor	Fair to good	Good	Good	Soil properties good	Not well suited; excessive seepage.

See footnotes at end of table.

of engineering properties

Soil features affecting engineering practices—Continued						
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	Suitability for septic tanks
Reservoir areas	Embankments					
For excavated ponds; many areas are suited to impounding; frequent flooding.	Fairly stable on mild slopes.	Seasonally high water table.	Moderately slow infiltration rate.	Soil properties favorable; terraces not needed; diversions may be needed to divert water from higher areas.	Moderate available water capacity; low fertility.	High water table; frequent flooding.
Good; impervious to a depth of 5 feet or more.	Slow permeability; erodes easily in sloping areas.	Not needed; areas are sloping.	High available water capacity; slow rate of absorption.	High erodibility; high runoff potential.	Moderate to high available water capacity; low fertility; high erodibility.	Not suited; low percolation rate.
Good; impervious.	Fair stability; slopes need control.	Seasonally perched water table; needed in nearly level areas.	Moderately high available water capacity; slow infiltration rate.	Soil properties favorable.	Moderate available water capacity; low to moderate fertility.	Perched water table; low percolation rate.
Excessive seepage.	Fairly stable on gentle slopes.	Surface drainage needed in nearly level areas; good internal drainage.	Moderate available water capacity; moderate infiltration rate.	Soil properties favorable; may need diversions to give protection from runoff from higher areas.	Moderate available water capacity; low fertility.	High percolation rate.
Excessive seepage in some areas.	Fairly stable if used in cores, blankets, and dike sections.	Seasonally high water table; level slopes; moderately permeable; frequent flooding.	Slow to moderate infiltration rate; high to moderate available water capacity.	Soil properties favorable; diversions may be needed to protect from runoff from higher areas.	Moderate available water capacity; moderate to low fertility.	Seasonally high water table; occasional flooding.
Excessive seepage.	Fairly stable; too pervious.	Not needed; has good natural drainage.	Rapid infiltration rate; low available water capacity.	Moderate erodibility; low runoff potential; soil properties favorable.	Moderate erodibility; low available water capacity; low fertility.	Very high percolation rate.
Impervious; will support deep water.	Slow permeability; erodes easily in sloping areas.	Seasonally high water table; needed in nearly level areas.	Slow infiltration rate; moderately high available water capacity.	High erodibility in sloping areas; high runoff potential.	Erodes easily in sloping areas; moderate to low fertility; low available moisture capacity.	Not suited; low percolation rate.
Excessive seepage.	Fairly pervious; good stability and strength.	Not needed; has good natural drainage.	Rapid infiltration rate; low available water capacity.	Low runoff potential; soil properties favorable.	Low available moisture capacity; low fertility.	High percolation rate.
Excessive seepage.	Fairly pervious; good stability and strength.	Not needed; has good natural drainage.	Moderately high infiltration rate; moderate to low available water capacity.	Low runoff potential; soil properties favorable.	Low available moisture capacity; low fertility.	High percolation rate.

TABLE 8.—*Interpretation of*

Soil series and map symbol	Suitability as source of—				Soil features affecting engineering practices—	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Gullied land (Gu)	(3)	(3)	(3)	(3)	(3)	(3)
Henry (Hn)	Poor	Unsuited	Unsuited	Poor to unsuited.	High water table; fragipan impedes internal drainage.	Poor to fair stability; use in cores.
Izagora (IzA)	Upper 1½ feet fair.	Unsuited	Unsuited	Poor	Heavy, plastic clay at a depth of about 1½ feet.	Fairly stable on flat slopes; use in cores and blankets.
Leaf (Lf)	Poor	Unsuited	Unsuited	Poor	Plastic clay; high shrink-swell potential.	Fairly stable; use in cores and blankets.
Mantachie and Falaya soils (Mf).	Fair	Unsuited	Unsuited	Fair	Somewhat poorly drained; occasional to frequent flooding.	Poor to fair stability; may be used in dikes if properly controlled; low shrink-swell potential.
Myatt (My)	Poor	Unsuited	Unsuited	Poor	Fragipan impedes internal drainage.	Poor stability; may be used in cores and blankets.
Ochlockonee (Oc, Qh, Om).[4]	Fair to good	Unsuited to fair; the Iuka soil in the Om mapping unit is unsuited.	Unsuited	Fair to good	Soil properties satisfactory; the Iuka soil in the Om mapping unit is moderately well drained and is subject to occasional or frequent flooding.	Stable on gentle slopes; low shrink-swell potential.
Ora (OrA, OrB, OrB2, OrC, OrC2, OrC3, OrD, OrD2, OsB, OsB2, OsC2).	Fair	Unsuited	Unsuited	Fair to good	Erodes easily; fragipan impedes internal drainage.	Fairly stable; low shrink-swell potential.
Pheba (PhA, PhB)	Poor	Unsuited	Unsuited	Fair to good	Somewhat poorly drained; fragipan impedes internal drainage.	Fairly stable; low shrink-swell potential.
Prentiss (PnA, PnB)	Fair	Unsuited	Unsuited	Fair to good	Fragipan impedes internal drainage.	Fairly stable; low shrink-swell potential.

See footnotes at end of table.

engineering properties—Continued

Soil features affecting engineering practices—Continued						
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	Suitability for septic tanks
Reservoir areas	Embankments					
[3]	[3]	[3]	[3]	[3]	[3]	[3].
Low seepage rate.	Poor to fair stability; use in cores.	High water table; ponded part of the year; slowly permeable.	Slow infiltration rate; moderately high available water capacity.	Not needed, because of flat slopes.	Low available water capacity; low fertility.	Not suited, because of high water table and low percolation rate.
Impervious below a depth of 1½ feet; will support deep water.	Fairly stable in sloping areas; use in cores, blankets, and dike section.	Moderate to slow permeability; level slopes; needs surface drainage.	Moderate rate of infiltration; moderate available water capacity.	Impervious clay at a depth of about 1½ feet.	Moderate available water capacity; low fertility.	Low percolation rate; seasonally high water table.
Impervious; will support deep water.	High shrink-swell potential; cracks when dry.	Slow infiltration rate; nearly level slopes; needs surface drainage.	Slow infiltration rate; moderately high available water capacity.	Not needed; slopes are nearly level.	Moderate to high available water capacity; low fertility.	Slow percolation rate; seasonally high water table.
Moderate to low seepage.	Fair stability; can be used in dams if properly controlled.	Moderately permeable; seasonally high water table; nearly level slopes; surface drainage needed.	Moderate to slow infiltration rate; moderate available water capacity.	Soil properties favorable.	Not needed; slopes are nearly level.	Moderate percolation rate; seasonally high water table; occasional to frequent flooding.
Impervious	Erodes easily in sloping areas; can be used in cores, blankets, and dikes.	Slowly permeable on flat slopes; surface drainage needed.	Slow infiltration rate; moderate available water capacity.	Fragipan about 1 foot beneath the surface.	Not needed; slopes are nearly level.	Slow percolation rate; high water table; flooding.
Ranges from excessive seepage to impervious; Iuka soil has moderate seepage.	Fair stability and strength.	Needs surface drainage; internal drainage satisfactory.	Moderate infiltration rate; moderate available water capacity.	Soil properties suitable; terraces not needed; diversions may be needed in some fields.	Moderate available water capacity; low to moderate fertility.	Occasional to frequent flooding.
Excessive to slow seepage.	Good strength; fairly stable.	Seasonally perched water table; surface drainage needed in nearly level areas.	Moderate available water capacity; moderate infiltration rate to a depth of 2 feet.	Terraces needed, except on nearly level areas; soil properties favorable.	Moderate available water capacity; low fertility.	Poor because fragipan impedes internal drainage.
Moderate to slow seepage.	Fair stability and strength.	Seasonally perched water table; surface drainage needed.	Moderate infiltration rate to a depth of 2 feet; moderate available water capacity.	Soil properties favorable.	Moderate available water capacity; shallow rooting zone.	Perched water table; fragipan impedes internal drainage.
Excessive to slow seepage.	Fair stability; good strength.	Seasonally perched water table; surface drainage needed in level areas.	Moderate infiltration rate to a depth of 24 inches; moderate available water capacity.	Terraces not needed; diversions may be needed in some fields; soil properties favorable.	Moderate available water capacity; low fertility.	Perched water table; fragipan impedes internal drainage.

TABLE 8.—*Interpretation of*

Soil series and map symbol	Suitability as source of—				Soil features affecting engineering practices—	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Providence (PrA, PrB, PrB2, PrC).	Poor to fair	Unsuited	Unsuited	Fair to a depth of 1 to 2 feet; poor below that depth.	Erodes easily; fragipan impedes internal drainage.	Fairly stable; low shrink-swell potential.
Ruston (RsA, RsB, RsB2, RsC, RsC2, RsC3, RsD, RsD2, RsD3, RsE, RsE2, RsE3, RsF, RsF2, RsF3, RuC).[5]	Generally good to fair, but the Cuthbert soil in the RuC mapping unit is unsuited.	Fair	Unsuited	Generally good, but the Cuthbert soil is unsuited.	Soil properties generally favorable, but the Cuthbert soil contains plastic soil material and has moderate to high shrink-swell potential.	Generally erodes easily in sloping areas, but the Cuthbert soil is stable on flat slopes and can be used in cores and blankets.
Savannah (SbA, SbB, SbB2, SbC, SbC2).	Fair	Unsuited	Unsuited	Fair to good	Fragipan impedes internal drainage.	Fairly stable; low shrink-swell potential.
Stough (StA, StB)	Poor	Unsuited	Unsuited	Fair to good	Somewhat poorly drained; fragipan impedes internal drainage.	Fairly stable on gentle slopes; good strength.
Susquehanna (SuB, SuC, SuD).	Poor	Unsuited	Unsuited	Poor	Highly plastic material; high shrink-swell potential.	High shrink-swell potential.
Swamp (Sw)	Unsuited	Unsuited	Unsuited	Unsuited	Wet, spongy material; should be removed where practical.	Wet, spongy material; should be removed where practical.
Tilden (TdA, TdB)	Fair	Unsuited	Unsuited	Good to fair	Fragipan impedes internal drainage.	Fairly stable on gentle slopes; good strength.
Vicksburg (Vc)	Fair to good	Unsuited	Unsuited	Fair	Soil properties satisfactory, except for occasional flooding.	Low to moderate stability; low shrink-swell potential.

[1] To find interpretations for the Boswell, Cuthbert, and Savannah soils (BrD) and the Boswell and Savannah soils (BsC), see the ratings given for the Boswell and Savannah series. The Cuthbert soils are rated the same as the Boswell soils.
[2] To find interpretations for Eustis and Ruston soils, 12 to 40 percent slopes, see the ratings given for the Eustis and Ruston series.
[3] Variable.

engineering properties—Continued

Soil features affecting engineering practices—Continued						
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways	Suitability for septic tanks
Reservoir areas	Embankments					
Moderate to very slow seepage.	Fair stability and strength.	Seasonally perched water table at the surface; surface drainage needed in nearly level areas.	Slow rate of infiltration in the uppermost 24 inches; moderate available water capacity.	Erodes easily in strongly sloping areas; soil properties favorable.	Erodes easily in strongly sloping areas; moderate available water capacity.	Poor; fragipan impedes the internal drainage.
Seepage generally excessive; the Cuthbert soil is impervious to a depth of 5 feet.	Erodes easily in sloping areas; the Cuthbert soil has slow permeability.	Not needed, because the soils are sloping.	For most of the soils, moderate rate of infiltration and moderate available water capacity; the Cuthbert soil has high available water capacity.	For most of the soils, soil properties are favorable; the Cuthbert soil has high erodibility and high runoff potential.	Most of the soils erode easily, are moderate in available water capacity and are low in fertility; the Cuthbert soil has high available water capacity.	Moderately high percolation rate; the Cuthbert soil has slow permeability.
Excessive seepage to slow seepage.	Fairly stable on gentle slopes; low shrink-swell potential.	Surface drainage needed in nearly level areas.	Moderately slow infiltration rate; moderate available water capacity.	Erodes easily in sloping areas; soil properties favorable.	Erodes easily in sloping areas; moderate available water capacity; low fertility.	Fragipan impedes internal drainage.
Moderate to slow seepage.	Fairly stable on gentle slopes; low shrink-swell potential.	Perched water table; slow runoff; surface drainage needed.	Moderate infiltration rate in upper 16 inches; moderate available water capacity.	Soil properties favorable.	Moderate available water capacity; low fertility.	Perched water table; fragipan impedes internal drainage.
Impervious; will support deep water.	Slowly permeable; high shrink-swell potential.	Very slowly permeable; subsurface drainage difficult.	Slow infiltration rate; high available water capacity.	Erodes easily; high runoff potential; plastic clay.	Erodes easily; high available water capacity; low fertility.	Very slow percolation rate.
Excessive seepage.	Unsuitable; subsidence.	Water table at the surface; outlets difficult to locate.	[3]----------	Not needed------	Not erodible; low position.	Water table at the surface.
Moderate to slow seepage.	Fairly stable on gentle slopes; low shrink-swell potential.	Surface drainage needed in nearly level areas.	Moderate infiltration rate in upper 2 feet; moderate available water capacity.	Not needed, because of flat slopes; soil properties favorable.	Moderate available water capacity; low fertility.	Fragipan at a depth of 2 feet impedes internal drainage.
Low seepage-----	Fair stability and strength.	Surface drainage needed; internal drainage satisfactory.	Slow infiltration rate; high available water capacity.	Soil properties suitable.	High available water capacity; moderate fertility.	Hazard of overflow.

[4] To find interpretations for the Mantachie soils in the Om mapping unit, see the ratings given for Mantachie and Falaya soils. Interpretations for the Iuka soils are the same as those for the Ochlockonee soils, except for differences mentioned in this table.

[5] To find interpretations for the Ora soils in the (RuC) mapping unit, see the Ora series. The Cuthbert soils are rated the same as the Ruston soils, except for differences mentioned in this table.

Highway and Foundation Engineering.—Some of the problems of designing, constructing, and maintaining highways and building foundations are caused by the characteristics of the soils or by drainage. Bedrock in this county presents no problem, because of its great depth, but because it is buried deeply, it cannot be used as a footing for foundations.

The data in table 8 can be used to evaluate the suitability of the various soils for use in highways and building foundations. The Boswell, Susquehanna, Leaf, and Falkner soils and the lower part of the Ora heavy substratum soils shrink when dry and swell when wet. These soils are not suitable for subgrades or footings. If they were used for such purposes, the contraction and expansion would cause the pavement to warp and crack or cause the foundation to give way. Cracking and warping can be minimized by using a thick layer of soil material that has a low shrink-swell potential as a foundation course beneath the pavement.

Many soils have either a high water table or have ponded water on the surface for long periods each year. These soils are unfavorable as sites for buildings and are problem sites where roads are to be constructed. Roads on these soils should be constructed on fill sections, and adequate underdrains and surface drains ought to be provided. In low areas and in other areas that are flooded, roads are best constructed on a continuous embankment that is several feet above the level of frequent flooding. Swampy soils provide a poor foundation for roads; hence, they should be removed where practical from roadway sections and replaced by more suitable material.

Table 8 shows the general suitability of the various soils as sources of topsoil for roadbanks, lawns, and gardens. The soils rated "good," for example loamy soils, respond well to management. If they are used as sources of topsoil, a good turf is easily established and maintained. Those soils that contain layers dominantly of sand, clay, or gravel are rated "poor." The suitability rating of a soil as a source of sand is based mainly on a knowledge of soils that have provided suitable construction material in the past.

The suitability of soil as material for road fill depends largely on the texture and the natural content of water. Very plastic soils that are wet are difficult to handle, to dry, and to compact. They are given a rating of "poor." The subsoil of the Susquehanna, Boswell, Izagora, and other very plastic soils that have a high shrink-swell potential are rated "poor." Highly erodible soils composed mainly of fine sand or silt, such as the Bude and Providence soils, require moderately gentle slopes, close control of moisture while compacting, and rapid revegetation of side slopes to prevent erosion. These soils are rated "fair" as a source of road fill.

Soil features that affect the location of highways are also given in table 8. In this county the major soil features considered are (1) a high water table, (2) frequency and duration of flooding, (3) shrink-swell potential, (4) bearing capacity, and (5) stability of slopes and embankments.

Agricultural Engineering.—An estimate of the evaluation of the soil features as they affect agricultural engineering is given in table 8. In planning agricultural engineering practices in this county, it will be helpful to study the engineering properties given in tables 6 and 7.

If good yields of crops are to be obtained, some of the soils need dikes or levees to protect them from flooding. The major features that influence the suitability of the soil material for dikes and levees are (1) stability, (2) shrink-swell potential (cracking when dry), (3) permeability, and (4) variability of soil material.

The soil feature considered important in the construction of reservoir areas for farm ponds is permeability of the soil and of the underlying material. Permeability controls the rate of seepage. Soils that are rapidly permeable or those that are underlain by a permeable layer are unsuited to farm ponds. The features important for embankments for farm ponds are permeability, shrink-swell potential, and strength and stability of the soil material. Some embankments for farm ponds are constructed with an inner core of clayey, impermeable material that is covered by an outer shell of silty or sandy material. This type of construction prevents most of the seepage through the embankment and improves the stability of the embankment slopes.

Many of the soils need a good drainage system for most agricultural crops to be grown. Adequate outlets are essential to good drainage, and in some places drainage outlets can be provided by dragline ditches that lead from poorly drained areas to streams. Many of the streams need to be cleared of brush and vegetation to improve the flow of water.

V-type and W-type ditches serve as field drains and carry water from rows to secondary drainage ditches. As the name implies, the V-type ditch is shaped like the letter V. It has 3: 1 minimum side slopes, is easy to maintain, and can be crossed by farm machinery. Water, however, will not drain easily into a V-type ditch unless the soil is leveled or special inlets are made.

A W-type ditch is built by moving the spoil from two small parallel ditches toward the center of the area between the ditches. This produces a ridge between the ditches. Water from the rows can drain easily into each of the two ditches. The raised center can be cultivated, or it can be used as a road or turn row.

The arrangement of rows is important in providing drainage on farms. The grade of the rows should be just enough so that excess water will run off slowly and will not cause erosion. For most soils in the county, the best grade is 0.3 foot of fall per 100 feet of row length. Care is needed to keep the rows short enough so that the volume of water to be handled is not too large.

The soils that have a permeability of more than 0.05 inch of water per hour are suitable for tile drains. Open dragline ditches or streams serve as outlets.

In this county supplemental irrigation is likely to be needed for part of the growing season because rainfall is not always distributed evenly. Much of the rain falls in winter, and generally from June through September there is not enough moisture for optimum growth of plants.

The soil features that affect irrigation designs and practices are (1) intake rate, (2) slope, and (3) available water capacity. The soils that have low available water capacity and a rapid intake rate require frequent applications of water. Those soils that have a very slow intake rate or that are not highly productive are poorly suited to irrigation.

Three methods of irrigation are suited to this county—the sprinkler system, graded furrow, and contour border methods. There are limitations and advantages to all three methods.

The sprinkler method is suited to many soils and varying slopes. Land leveling is not necessary, but the labor requirement is high. The graded furrow method is suited to medium- and fine-textured soils. Land smoothing or leveling is usually required, but the labor requirement for operation is not high. The contour furrow method can be used on slightly steeper slopes than the furrow method, and the amount of labor required for operation is low to moderate.

Most of the cultivated soils in the Ruston-Ora-Savannah and the Providence-Bude associations, shown on the general soil map, require various agricultural engineering practices to reduce erosion. The soil material in these associations is favorable for the construction of terraces and diversions.

Large fields and uniform slopes are best suited to terraces. Land smoothing permits construction of terraces that are well alined and easily farmed. Most terraces are constructed on a slight grade. Excess water is drained into natural depressions or constructed waterways. These waterways need a cover of vegetation that reduces erosion. Special care will be needed to establish vegetation on those soils that have low available water capacity and low fertility.

Formation, Morphology, and Classification of Soils

In this section are discussed the factors that affect the formation of soils, the processes of soil formation, and the classification of the soils into higher categories. Following this, the great soil groups are defined, and a soil profile that is typical for each series is described.

Formation of Soils

Soil is a function of climate, plant and animal life, parent material, topography, and time. The nature of the soil at any point on the earth depends upon the combination of the five major factors at that point. All five of these factors come into play in the formation of every soil. The importance of each differs from place to place; sometimes one is more important, and sometimes another. In extreme cases one factor dominates in the formation of the soil and fixes most of its properties, as is common when the parent material consists of pure quartz sand. Little can happen to quartz sand, and the soils derived from it have faint horizons. Even in quartz sand, however, a distinct profile can be formed under certain types of vegetation where the topography is low and flat and a high water table is present. Thus, for every soil the past combination of the five major factors is of the first importance to its present character.

Climate.—Climate as a genetic factor affects the physical, chemical, and biological relationship in the soil, primarily through the influence of precipitation and temperature. Water dissolves minerals, supports biological activity, and transports minerals and biological residues through the profile. The amount of water that actually percolates through the soil over a broad area depends mainly upon the rainfall, relative humidity, and length of the frost-free period. At a given point, the amount of downward percolation is also affected by physiographic position and by the permeability of the soil.

Temperature influences the kinds and the growth of organisms and the speed of physical and chemical reactions in the soils. Variations in the microclimate cause certain characteristics of the soils to differ from those developed under the prevailing macroclimate.

The climate of Covington County is of the humid, warm-temperate, continental type. Over the county, climate is a uniform factor in the development of the profile, and it has made a marked impression on most of the soils. The soils are moist and subject to leaching much of the time from December 1 through August 20. They are usually moderately dry from August 20 through November 30. The soils are seldom frozen, and then only to a depth of 1 to 2 inches. Therefore, freezing and thawing have had little or no effect on the weathering and soil-forming processes.

Plant and animal life.—Micro-organisms are indispensable in the development of soils. Bacteria, fungi, and other micro-organisms aid in weathering rock and decomposing organic matter. The larger plants serve to alter the microclimate, to furnish organic matter, and to transfer elements from the subsoil to the surface soil. The kinds and numbers of plants and animals that live on and in the soil are determined in large part by the climate and, to varying degrees, by the parent material, relief, and age of the soil.

Not much is known of the fungi and micro-organisms in the soils of this county, except that they are confined to the uppermost few inches. Ants, earthworms, and other invertebrates are most active in the A1 and A2 horizons and in the upper part of the B horizon, where they carry on a slow but continual cycle of soil mixing. Mixing of soil material by rodents does not appear to have been of much consequence in the county.

The native vegetation on the slopes was largely a heavy growth of longleaf pine. On some of the hills, there was also white oak, red oak, dogwood, and some shortleaf pine. Hickory, sweetgum, blackgum, persimmon, wild cherry, post oak, blackjack oak, and other kinds of trees were on some of the lower slopes. On the bottom lands along streams the growth was principally shortleaf and loblolly pine, blackgum and sweetgum, bay, ash, magnolia, and several species of oak and maple with an understory of vines, shrubs, and herbaceous plants. Before the timber was cut, the understory was sparse on the uplands.

Only the major differences in the original vegetation are reflected, to any extent, in the soils. The cutting of the virgin forest and the burning of the refuse, which followed logging operations, has changed the kinds of trees in the forests, but not to the extent that the influence of the trees on soil development has changed. The clearing of land for agriculture has introduced new plants that may influence the future development of the soils.

Parent material.—Parent material is the unconsolidated mass from which a soil develops. It is largely responsible for the chemical and mineralogical composition of soils.

In this county the parent material of most of the soils is sedimentary sand, silt, and clay of the Coastal Plain. Three geologic formations—the Citronelle (Pliocene), the Hattiesburg clay (Miocene), and the Catahoula sandstone (Miocene) appear at the surface (*4*). A few of the soils formed in a thin mantle of loess that overlies the Citronelle formation or Hattiesburg clay. Most of the soils of uplands formed from material of the Citronelle formation, which underlies most of the county. A few formed from the Hattiesburg clay, which lies immediately beneath the Citronelle formation and outcrops on the lower slopes and elevations in many places. The Catahoula formation, which outcrops in streambanks and forms the bed of most of the larger streams, does not contribute to the parent material of the soils in this county.

The soils along the larger streams in the county formed from material transported and deposited by streams. Much of this alluvial material originated from the soils and parent material of the nearby uplands, but some came from the same kind of soils or parent material in counties to the north. The soils on first bottoms are subject to annual deposition, but those on the terraces may not receive any deposition or may be subject to only occasional deposition. Along drainageways throughout the uplands, there are narrow strips of local alluvium that has been modified little, if any, by the soil-forming processes.

Topography.—Topography is largely determined by the kind of geologic formation, the geologic history of the general area, and the effects of dissection by streams. It influences the formation of the soils through its effects on moisture relations, erosion, temperature, and plant cover. This influence is modified by the other four factors of soil formation.

In this county the topography is determined largely by the predominantly sandy Citronelle formation. The topography of the county is characterized by moderate to steeply sloping hills that are dissected by relatively wide stream valleys. The hills range in altitude from less than 200 feet below sea level to 400 feet above, and from 25 to 200 feet above the floor of the valley. The tops of most of the hills are nearly level or gently sloping and are relatively wide. Except along upland drainageways, most of the soils formed in alluvium are nearly level.

Time.—The length of time required for the development of a soil depends largely on the other factors of soil formation. Less time is generally required for a soil to develop in a humid, warm region where plant growth is abundant than in a dry, cold region where vegetation is scanty. Also, less time is required if the parent material is coarse textured than if it is fine textured, other things being equal.

Geologically the soils of the county are young. Nevertheless, the humid climate, the moderately porous texture, and abundant vegetation have contributed to the rapid development of most of the soils. Many of the soils on the smoother slopes and older stream terraces have developed to maturity. On the first bottoms and in areas of local alluvium, the soil material has been in place too short a time to allow for mature development.

Processes of Soil Formation

Soil-forming processes are complex because of the wide range in parent material, relief, age, and biologic activity. Except where the parent material and relief are extreme enough to suppress or overbalance the other factors, podzolization is the primary soil-forming process in this county because of the kind of climate and vegetation. In many places the relief and parent material limit, or suppress entirely, the progress of podzolization, and gleization then becomes active in varying degrees. In still other places neither of these processes has been active in the formation of the soils. The soils of the flood plains, for example, are immature, and the effects of these soil-forming processes are only weakly expressed in their profiles.

Podzolization is the dominant soil-forming process in this county where the soils are sufficiently well drained and the texture is not too fine (*3*). Many of the soils of the county have been affected by this process. They are classified in the Red-Yellow Podzolic great soil group.

Gleization is the dominant soil-forming process in the development of other soils formed in fine-textured material that is impervious, or nearly so, and of some of the more nearly level soils. Soils formed in areas where water stood on or near the surface continuously are examples of such soils. The continuous wetness and the lack of oxygen resulted in the reduction of iron, the gray color, pronounced hydration, reduced leaching, accumulation of organic acids, and the anaerobic biological activity. Soils of this kind have been classified in the Low-Humic Gley great soil group.

The combined processes of podzolization and gleization have influenced the development of still another group of soils, the Planosols. The soil-forming processes show evidence of podzolization in some soils and gleization in others. The intensity of the influence of each process depends on the characteristics of the parent material, relief, and biologic agents. Other soils, such as the Ora, Savannah, Providence, Prentiss, and Tilden, are influenced by both processes, as evidenced by the fragipan, which has formed under the moderately well drained part of the solum.

Deep, soft mineral deposits of unconsolidated rock in which few or no clearly expressed soil characteristics have developed are the Regosols. In Covington County these soils have formed in quartz sand and gravelly sand. Few clearly expressed profile characteristics have developed. The resistance of the parent material is the factor mainly responsible for the characteristics, or lack of profile characteristics, in those soils.

Because the alluvial parent material was only recently deposited on the flood plains, only minor profile development has occurred in soils formed in the alluvial material. The profile is leached, as shown by the lack of carbonates and the acid reaction, and some organic matter has accumulated in the A horizon. These soils are in the Alluvial great soil group. For the names and a brief description of the soils in these various great soil groups, see table 9.

Classification of Soils in Higher Categories

Soils are placed in narrow classes for the purpose of discussing their suitability for agriculture and their management requirements. They are placed in broader classes for study and comparison of large areas. The comprehensive system of soil classification followed in the United

States consists of six categories (*7*). Beginning with the broadest category, these are the order, suborder, great soil group, family, series, and type. The suborder and family have never been fully used and are not discussed in this report.

There are three orders of soils—the zonal, the intrazonal, and azonal. Zonal soils, in general, are characterized by well-differentiated horizons and by profiles that differ strongly according to the climatic-ecological zone within which they occur (*5*). Intrazonal soils have evident, genetically related horizons that reflect the dominating influence of some local factor of relief or parent material over the normal effect of climate and vegetation. Azonal soils lack distinct, related horizons because of their youth, resistant material, or steep topography.

The great soil group consists of soils that have common internal characteristics. In table 9, the soil series in Covington County are listed by great soil groups. Some of the characteristics and the genetic relationship of the soils are shown in this table.

The classification of soil series into great soil groups is based principally on those characteristics observed in the field. Supplementary laboratory data are limited. Further study may prove the classification to be incorrect in some instances.

Red-Yellow Podzolic soils

In the Red-Yellow Podzolic great soil group are well-developed, well-drained, acid soils that have a thin, organic A0 horizon and an organic-mineral A1 horizon. The A1 horizon overlies a light-colored, bleached A2 horizon. Below is a red, yellowish-red, or yellow, more clayey B horizon. Coarse, reticulate streaks or mottles of red, yellow, brown, and light gray are characteristic of the deep horizons.

The Ruston, Cahaba, and Boswell soils are examples of soils that have profiles like the central concept of soils in the Red-Yellow Podzolic great soil group. The profiles of the Ruston and Cahaba soils are similar, but the Ruston soils are on uplands, and the Cahaba soils are on terraces. The Ruston and Cahaba soils have coarser textured B and C horizons than the Boswell soils. They have a dark grayish-brown to yellowish-brown A1 horizon and a well-defined A2 horizon. The B2 horizon has moderate, medium and fine, subangular blocky structure and contains more clay than the A1 or A2 horizon. The structure in the C horizon is less strong than that of the B horizon, and in most places the C horizon contains less clay than the B horizon.

The content of organic matter is low in all of these Red-Yellow Podzolic soils. It ranges from 1.0 to 1.5 percent in the A1 horizon but decreases markedly with increasing depth. The soils are strongly acid, low in exchangeable potassium, and low in available phosphorus. In some profiles only traces are present. The cation-exchange capacity (milliequivalents per 100 grams of soil) ranges from 2.0 in the A1 horizon to 7.55 in the B2 horizon (*2*).

The dominant mineral in the silt fraction (2 to 50 microns in diameter) is quartz. Illite, in at least trace amounts, is present in all horizons. Kaolinite and vermiculite were present at several points in the profile, and halloysite and montmorillonite were also present at several points. In the clay fraction (less than 2 microns in diameter), kaolinite is probably the dominant mineral when the profile, as a whole, is considered. Within the topmost 18 inches, vermiculite was present in equal or greater amounts than kaolinite, but it decreases with increasing depth. Gibbsite and illite are present in most places, and lepidocrocite, goethite, and perhaps montmorillonite are present (*2*).

The Boswell soils have a dark-gray to pale-brown, medium-textured A1 horizon and a well-defined, light-gray to pale-brown A2 horizon. The A1 horizon overlies a red B2 horizon that is high in content of clay and has moderate, medium, subangular blocky structure. The C horizon is lighter colored than the B2. It is highly mottled and is massive.

The content of organic matter is low in the A1 horizon and it decreases with increasing depth. The soils are strongly acid, and as depth increases they become very strongly acid. Exchangeable potassium and available phosphorus are low. Cation-exchange capacity is relatively low in the A1 and A2 horizons, but it is 54 to 57 (milliequivalents per 100 grams of soil) in the B horizon. Base saturation is high in the A1 and A2 horizons, but it is low in the B horizon (*8*).

The dominant mineral in the clay fraction of the A1 and A2 horizons is kaolin, with some illite. The dominant mineral in the B horizon is montmorillonite (*8*). There is some kaolin, quartz, and gibbsite, and perhaps some illite and vermiculite in the B and C horizons.

Following are descriptions of Red-Yellow Podzolic soils in this county.

Boswell Series

The Boswell series consists of moderately well drained Red-Yellow Podzolic soils. These soils formed in acid clay of the Gulf Coastal Plain.

The Boswell soils are associated with the Ruston and Susquehanna soils. They have a thinner solum and are less well drained than the Ruston soils, and their B and C horizons are more clayey. The Boswell soils have a thicker solum than the Susquehanna soils and are better drained than those soils. Their B and C horizons are clayey like those of the Susquehanna soils.

The Boswell soils are not extensive in this county, and they are used chiefly for trees. Plastic clay near the surface limits their use for cultivation.

The following describes a profile of Boswell silt loam, 2 to 5 percent slopes, 1 mile north of Rockwell Church (sec. 6, T. 8 N., R. 16 W.) :

Ap—0 to 3 inches, dark-gray (10YR 4/1, moist) or light-gray (10YR 7/1, dry) silt loam; moderate, fine, crumb structure; friable when moist; many fine roots; some small quartz pebbles; abrupt, smooth boundary; strongly acid.

A2—3 to 5 inches, light-gray (10YR 7/2, moist) or white (10YR 8/2, dry) silt loam; weak, fine, crumb structure; friable when moist; material from the B21 horizon has been moved upward and mixed with the material in this horizon; many fine roots; abrupt, smooth boundary; strongly acid.

B21t—5 to 13 inches, red (2.5YR 4/8, moist) or red (2.5YR 4/8, dry) clay; moderate, fine and medium, subangular blocky structure; plastic when wet; roots are common; several old root channels are filled with silt from the Ap and A2 horizons; scattered fine quartz pebbles; abrupt, smooth boundary; very strongly acid.

TABLE 9.—*Soil series classified according to great soil*

Great soil group and series	Brief profile description	Position
Red-Yellow Podzolic soils:		
Central concept—		
Boswell	Dark-gray silt loam over a subsoil of red clay; below is mottled gray, plastic clay.	Uplands
Cahaba	Brown to dark-brown fine sandy loam over a subsoil of yellowish-red to strong-brown loam to fine sandy loam.	Terraces
Cuthbert	Brown fine sandy loam over a subsoil of yellowish-red and yellowish-brown clay stratified with sandy material.	Uplands
Izagora	Dark grayish-brown fine sandy loam over a friable, yellowish-brown subsoil; below is plastic clay.	Terraces
Ruston	Very dark grayish-brown fine sandy loam over yellowish-red to red loam or clay loam.	Uplands
Saffell	Grayish-brown gravelly fine sandy loam over a subsoil of strong-brown gravelly sandy clay loam.	Uplands
Susquehanna	Yellowish-brown silt loam over a subsoil of mottled, gray clay	Uplands
With a fragipan—		
Bude	Dark grayish-brown silt loam over a subsoil of yellowish-brown silty clay loam; a fragipan is 15 to 22 inches beneath the surface.	Uplands
Ora	Fine sandy loam or silt loam over a yellowish-red, medium-textured to moderately fine textured subsoil; a fragipan is 20 to 28 inches beneath the surface.	Uplands
Prentiss	Dark-gray fine sandy loam over a subsoil of yellowish-brown loam; a fragipan is 20 to 28 inches beneath the surface.	Terraces
Providence	Dark-brown silt loam over a subsoil of brownish-yellow or yellowish-brown silty clay loam; a fragipan is 20 to 28 inches beneath the surface.	Uplands
Savannah	Grayish-brown loam over a subsoil of yellowish-brown loam; a fragipan is 20 to 28 inches beneath the surface.	Uplands
Tilden	Grayish-brown fine sandy loam over a subsoil of strong-brown loam; a fragipan is 20 to 28 inches beneath the surface.	Terraces
Intergrading toward Low-Humic Gley soils—		
Falkner	Gray silt loam over a subsoil of pale-brown silty clay loam; below is light brownish-gray clay.	Uplands
Alluvial soils:		
Central concept—		
Collins	Dark grayish-brown silt loam over a subsoil of yellowish-brown silt loam.	Flood plains
Falaya	Brown to dark grayish-brown silt loam over a subsoil of mottled, yellowish-brown silt loam.	Flood plains
Iuka	Dark grayish-brown silt loam over a subsoil of yellowish-brown, stratified silt loam and fine sandy loam.	Flood plains
Mantachie	Dark-gray silt loam over a subsoil of dark-gray to light brownish-gray stratified silt loam and fine sand loam.	Flood plains
Ochlockonee	Dark-brown fine sandy loam over a subsoil of strong-brown sandy loam.	Flood plains
Vicksburg	The surface layer and subsoil are dark-brown silt loam	Flood plains

groups, and important characteristics of the soils

Drainage class	Slope range	Parent material	Profile development
	Percent		
Moderately well drained	2 to 17	Clayey Coastal Plain material	Strong.
Well drained	0 to 5	Old, medium-textured alluvium of Coastal Plain origin	Moderate.
Moderately well drained	5 to 17	Unconsolidated, clayey and sandy Coastal Plain material.	Moderate to strong.
Moderately well drained	0 to 2	Old, medium-textured alluvium of Coastal Plain origin over fine-textured Coastal Plain alluvium.	Moderate.
Well drained	0 to 40	Unconsolidated, medium-textured Coastal Plain material.	Moderate.
Well drained	2 to 8	Unconsolidated, gravelly, medium-textured Coastal Plain material.	Moderate.
Somewhat poorly drained	2 to 17	Clayey sediments of the Coastal Plain	Moderate.
Somewhat poorly drained	0 to 5	Thin mantle of loess over Coastal Plain material	Moderate to strong.
Moderately well drained to well drained	0 to 12	Unconsolidated sediments of the Coastal Plain	Moderate.
Moderately well drained	0 to 5	Old, medium-textured alluvium of Coastal Plain origin	Moderate.
Moderately well drained	0 to 8	Thin mantle of loess over medium-textured Coastal Plain material.	Strong to moderate.
Moderately well drained	0 to 8	Unconsolidated sediments of the Coastal Plain	Moderate.
Moderately well drained to well drained	0 to 5	Old, medium-textured alluvium of Coastal Plain origin	Moderate.
Somewhat poorly drained	0 to 5	Thin mantle of loess over fine-textured material of the Coastal Plain.	Strong to moderate.
Moderately well drained	0 to 2	Recent alluvium that originated from loess	Weak.
Somewhat poorly drained	0 to 2	Recent alluvium that originated from loess	Weak.
Moderately well drained	0 to 2	Recent alluvium of Coastal Plain origin	Weak.
Somewhat poorly drained	0 to 2	Recent alluvium of Coastal Plain origin	Weak.
Well drained	0 to 2	Recent alluvium of Coastal Plain origin	Weak.
Well drained	0 to 2	Recent alluvium that originated from loess	Weak.

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TABLE 9.—*Soil series classified according to great soil*

Great soil group and series	Brief profile description	Position
Planosols:		
With a fragipan—		
Henry	Gray silt loam over a subsoil of light brownish-gray silt loam; a fragipan is 6 to 20 inches beneath the surface.	Uplands
Pheba	Grayish-brown loam over a subsoil of yellowish-brown loam or silty clay loam; a fragipan is 15 to 25 inches beneath the surface.	Uplands
Stough	Dark grayish-brown fine sandy loam over a subsoil of yellowish-brown loam; a fragipan is 15 to 25 inches beneath the surface.	Terraces
With a claypan—		
Leaf	Dark-gray silt loam over a subsoil of light-gray sandy clay loam; contains a claypan.	Terraces
Low-Humic Gley soils:		
Bibb	Grayish-brown silt loam over a subsoil of mottled gray, stratified silty clay loam and fine sandy loam.	Flood plains
Myatt	Gray or light brownish-gray silt loam over a subsoil of light-gray heavy silt loam or silty clay loam; a fragipan is 10 to 22 inches beneath the surface.	Terraces
Waverly	Dark grayish-brown to light brownish-gray silt loam over a subsoil of mottled light-gray and olive-gray silt loam.	Flood plains
Regosols:		
Eustis	Very dark grayish-brown loamy sand over a subsoil of reddish-brown to reddish-yellow loamy sand.	Uplands and terraces
Guin	Very dark grayish-brown gravelly sandy loam over a subsoil of yellowish-brown gravelly fine sandy loam; a gravel bed is about 30 inches beneath the surface.	Uplands

B22t—13 to 17 inches, red (2.5YR 4/8, moist) or red (2.5YR 4/8 to 25YR 5/6, dry) clay; common, medium and prominent mottles of light gray (10YR 7/2); moderate, fine and medium, subangular blocky structure; plastic when wet; roots are common and fine; several old root channels are filled with silt loam from the A1 and A2 horizons; clear, smooth boundary; very strongly acid.

B23t—17 to 23 inches, red (2.5YR 4/8, moist) or red (2.5YR 4/8, dry) clay; many, fine, faint mottles of red (10R 4/8) and prominent mottles of light gray (2.5YR 7/2); moderate, fine, subangular blocky structure; plastic when wet; several old root channels extending downward from the horizons above are filled with silt loam from the Ap and A2 horizons; gradual, smooth boundary; very strongly acid.

B3—23 to 38 inches, light-gray (5Y 7/2, moist) or white (5Y 8/2, dry) clay; many, medium and fine, prominent mottles of red (2.5YR 4/8) and yellow (10YR 7/8); weak, fine, subangular blocky structure; plastic when wet; gradual, smooth boundary; very strongly acid.

C—38 to 60 inches +, light-gray (5Y 7/2, moist) or white (5Y 8/1 to 5Y 8/2, dry) silty clay; few, medium, prominent mottles of red (2.5YR 4/8) and fine, prominent mottles of light red (10R 6/6) and yellowish red (5YR 5/8); massive; very strongly acid.

Cahaba Series

The Cahaba series consists of well-drained soils that formed in old alluvial material on stream terraces. These soils are in the Red-Yellow Podzolic great soil group.

The Cahaba soils are associated with the Tilden, Prentiss, Stough, and Myatt soils. They are better drained than those soils and lack a fragipan. The Cahaba soils resemble the Ruston soils of the uplands. They are widely distributed and are locally important to agriculture. The native vegetation is pine and scattered hardwoods.

The following describes a profile of Cahaba fine sandy loam, 0 to 2 percent slopes, along a gravel road near Sanford (SW¼ sec. 19, T. 6 N., R. 14 W.):

Ap—0 to 6 inches, brown to dark-brown (10YR 4/3, moist) fine sandy loam; weak, fine, granular structure; very friable when moist; many fine roots; much worm and ant action; abrupt, smooth boundary; strongly acid.

B1—6 to 11 inches, yellowish-red (5YR 4/8, moist) fine sandy loam, streaked and spotted with dark-brown and brown material from the Ap horizon; weak, fine and medium, subangular blocky structure; friable when moist; fine and medium-sized roots are common; clear, smooth boundary; strongly acid.

B21t—11 to 20 inches, yellowish-red (5YR 4/8, moist) loam; moderate, medium, subangular blocky structure; friable when moist; fine roots are common; many wormholes; several old root channels that are about 1 inch in diameter; a small amount of fine, scattered pebbles; clear, smooth boundary; strongly acid.

B22t—20 to 29 inches, yellowish-red (5YR 5/6, moist) loam with streaks and pockets of material from the upper horizons; moderate, medium, subangular blocky structure; friable when moist; a few fine roots; many wormholes; a small amount of fine, scattered pebbles; clear, smooth boundary; strongly acid.

B-31—29 to 37 inches, strong-brown (7.5YR 5/6, moist) loam; weak, medium, subangular blocky structure; friable when moist; a few fine roots; several old root channels; a small amount of fine, scattered pebbles; clear, smooth boundary; strongly acid.

B32-37 to 60 inches +, strong-brown (7.5YR 5/8, moist) fine sandy loam; very weak, subangular blocky to massive; very friable when moist; a few fine roots and old root channels; strongly acid.

groups, and important characteristics of the soils—Continued

Drainage class	Slope range	Parent material	Profile development
	Percent		
Poorly drained	0 to 2	Thin mantle of loess over Coastal Plain material	Weak (degraded).
Somewhat poorly drained	0 to 5	Unconsolidated material of the Coastal Plain	Moderate.
Somewhat poorly drained	0 to 5	Old, medium-textured alluvium of Coastal Plain origin	Moderate.
Poorly drained	0 to 2	Generally, fine-textured, old alluvium of Coastal Plain origin.	Moderate.
Poorly drained	0 to 2	Alluvium of Coastal Plain origin	Weak.
Poorly drained	0 to 2	Unconsolidated, medium-textured Coastal Plain material.	Weak.
Poorly drained	0 to 2	Alluvium that originated from loess	Weak.
Somewhat excessively drained	0 to 40	Sandy material of the Coastal Plain	Weak.
Excessively drained to somewhat excessively drained.	8 to 40	Gravelly material of the Coastal Plain	Weak.

Cuthbert Series

The Cuthbert series consists of moderately well drained soils of the Red-Yellow Podzolic great soil group. The soils developed in beds of clay over thin lenses of sandy material.

The Cuthbert soils occur with the Boswell and Savannah soils in areas that are strongly sloping to steep. They contain lenses of sandy material and are somewhat less sticky and plastic than the Boswell soils. The Cuthbert soils are finer textured than the Savannah soils, and they lack the fragipan that is characteristic of those soils.

The following describes a profile of a Cuthbert fine sandy loam northwest of Collins (NE¼ sec. 10, T. 8 N., R. 16 W.):

Ap—0 to 6 inches, brown (10YR 4/3, moist) fine sandy loam; weak, medium, granular structure; friable when moist; many fine roots; abrupt, smooth boundary; strongly acid.

B2t—6 to 16 inches, red (2.5YR 4/8, moist) clay loam to clay; strong, medium, subangular blocky structure; firm when moist; clay films on peds; clear, wavy boundary; strongly acid.

B3—16 to 30 inches, mottled yellowish-red (5YR 4/6 to 5YR 4/8, moist), red (2.5YR 5/8), light-gray (2.5Y 7/2), and yellow (10YR 7/6) sandy clay loam; moderate, fine and medium, subangular blocky structure; gradual, smooth boundary; strongly acid.

C—30 to 48 inches +, mottled yellowish-brown (10YR 5/6), yellowish-red (5YR 5/6), light-gray (10YR 7/1), strong-brown (7.5YR 5/6), and dark-red (10R 3/6), thinly bedded sandy clay loam and clay; massive; strongly acid.

Izagora Series

The Izagora series consists of nearly level, moderately well drained Red-Yellow Podzolic soils on stream terraces. These soils formed in medium-textured to moderately fine textured alluvium underlain by fine-textured alluvium.

The Izagora soils are associated with the Stough, Tilden, Prentiss, and Cahaba soils. They are better drained than the Stough soils, and they lack the fragipan that is characteristic of those soils. In drainage the Izagora soils are similar to the Tilden and Prentiss soils, but they are finer textured and lack a fragipan in the lower part of the subsoil. They are less well drained and have a finer textured subsoil than the Cahaba soils.

The following describes a profile of Izagora fine sandy loam, 0 to 2 percent slopes, 3 miles north of Hot Coffee (sec. 5, T. 9 N., R. 14 W.):

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2, moist) fine sandy loam; weak, fine, granular structure; very friable when moist; many fine and medium-sized roots; some charcoal; a few worms and many worm tunnels; abrupt, smooth boundary; strongly acid.

A2—6 to 8 inches, brown (10YR 5/3, moist) fine sandy loam; weak, fine, granular structure; very friable when moist; fine roots are common; charcoal is common; abrupt, smooth boundary; strongly acid.

B1—8 to 11 inches, yellowish-brown (10YR 5/4, moist) loam; weak, fine, subangular blocky structure; friable when moist; a few fine roots; some wormholes and ant channels; small bits of charcoal; clear, smooth boundary; strongly acid.

B21t—11 to 18 inches, strong-brown (7.5YR 5/8, moist) loam or clay loam; moderate, medium, subangular blocky

structure; firm when moist; a few patchy clay skins on the faces of peds; a few roots; several old root channels filled with material from the horizons above; clear, smooth boundary; strongly acid.

IIB22t—18 to 32 inches, light brownish-gray (2.5Y 6/2, moist) clay; many, fine and medium, prominent mottles of yellowish red (5YR 4/8) and red (2.5YR 5/8); moderate, medium, subangular blocky structure; firm when moist; gradual, smooth boundary; strongly acid.

IIC—32 to 55 inches +, light-gray (5Y 7/2, moist) clay or sandy clay; many, fine and medium, prominent mottles of yellowish red (5YR 4/8) and red (2.5YR 4/8); massive with some peds of weak, fine and medium, prismatic structure in the upper part of the horizon; firm when moist; strongly acid.

Ruston Series

The Ruston series consists of well-drained soils of the Red-Yellow Podzolic great soil group. The soils formed in acid, sandy material of the Gulf Coastal Plain. They are nearly level to very steep and are on uplands. The Ruston soils have a B horizon of yellowish-red or strong-brown fine sandy loam and a C horizon of reddish-yellow or strong-brown sandy loam.

These soils are associated with the Eustis, Ora, Savannah, and Pheba soils. They are well drained, rather than somewhat excessively drained like the Eustis soils, and their surface layer is fine sandy loam instead of loamy sand. Their B2 horizon is similar to that of the Ora soils, but the Ruston soils lack the fragipan that is typical of the Ora soils. The Ruston soils are better drained than the Savannah and Pheba soils, and they lack the fragipan that is characteristic of those soils.

The following describes a profile of Ruston fine sandy loam, 2 to 5 percent slopes, 2 miles east of old Salem School (sec. 9, T. 8 N., R. 15 W.):

A1—0 to 4 inches, very dark grayish-brown (10YR 4/2, moist) fine sandy loam; weak, fine, granular structure; very friable when moist; many fine roots; many wormholes and earthworms; clear, smooth boundary; very strongly acid.

A2—4 to 12 inches, yellowish-brown (10YR 5/4, moist) loam; weak, fine, subangular blocky structure; friable when moist; many fine roots; many fine pores and many wormholes; several old root channels filled with material from the Ap horizon; clear, smooth boundary; strongly acid.

B21t—12 to 20 inches, yellowish-red (5YR 4/6, moist) loam or clay loam; moderate, fine and medium, subangular blocky structure; slightly firm when moist; fine roots are common; many fine pores and many wormholes; walls of wormholes are coated with clay films; some fine pieces of charcoal; clear, smooth boundary; strongly acid.

B22t—20 to 28 inches, red (2.5YR 4/8, moist) loam or clay loam; moderate, fine and medium, subangular blocky structure; firm when moist; few fine roots; a few fine pores; wormholes are common; walls of wormholes are coated with clay films; a few fine pieces of charcoal; clear, smooth boundary; very strongly acid.

B3—28 to 35 inches, yellowish-red (5YR 4/6, moist) sandy loam; weak, fine, subangular blocky structure; very friable when moist and loose when dry; a few fine roots; a few fine pores; a few wormholes; gradual, smooth boundary; very strongly acid.

C—35 to 70 inches, strong-brown (7.5YR 5/6, moist) sandy loam; single grain; very friable when moist and loose when dry; a few fine roots; clear, smooth boundary; very strongly acid.

C2—70 inches +, red (2.5YR 4/8, moist) heavy sandy loam; massive; somewhat firm in place but friable when crushed; strongly acid.

Saffell Series

The Saffell series consists of well-drained, gently sloping to steep Red-Yellow Podzolic soils. These soils formed in Coastal Plain material that is high in gravel.

The Saffell soils occur with the Guin, Eustis, and Ruston soils. They have a distinct B horizon of clay accumulation that is lacking in the Guin soils. They are less sandy and have a much higher content of gravel than the Eustis soils. The Saffell soils are similar to the Ruston soils, but they contain more gravel. They are mapped in an undifferentiated unit with the Guin soils in small areas scattered throughout the county.

The following describes a profile of Saffell gravelly sandy loam, 2 to 8 percent slopes, 6 miles east of Collins along U.S. Highway No. 84 (sec. 1, T. 8 N., R. 15 W.):

A1—0 to 3 inches, dark grayish-brown (10YR 4/2, moist) gravelly fine sandy loam; weak, fine, crumb structure; very friable when moist; gravel ¼ to ½ inch in diameter; gradual, smooth boundary; strongly acid.

A2—3 to 8 inches, yellowish-brown (10YR 5/4, moist) gravelly fine sandy loam; weak, fine, granular structure; very friable when moist; gravel ¼ to ½ inch in diameter; gradual, wavy boundary; strongly acid.

B1—8 to 12 inches, strong-brown (7.5YR 5/8, moist) to yellowish-red (5YR 4/8, moist) sandy loam; weak, fine to medium, subangular blocky structure; very friable when moist; fine gravel ¼ to ½ inch in diameter; abrupt, smooth boundary; strongly acid.

B2—12 to 18 inches, dark-red (2.5YR 3/6, moist) to red (2.5YR 4/8, moist) sandy clay loam; weak, medium, subangular blocky structure; friable when moist and sticky when wet; 20 percent, by volume, is gravel ¼ to ½ inch in diameter; clear, smooth boundary; strongly acid.

B3—18 to 26 inches, yellowish-red (5YR 4/6, moist) loam; single grain to weak, fine, subangular blocky structure; friable when moist; 50 to 60 percent, by volume, is gravel one-eighth of an inch to 1 inch in diameter; clear, smooth boundary; strongly acid.

C—26 to 36 inches +, yellowish-red (5YR 4/6, moist) loamy coarse sand; single grain; very friable when moist; 60 to 80 percent, by volume, is gravel one-eighth of an inch to 1 inch in diameter; the lower layers are stratified coarse sand and gravel; strongly acid.

Susquehanna Series

The Susquehanna series consists of Red-Yellow Podzolic soils formed in thick beds of acid clay. The surface layer is commonly yellowish-brown, light-gray, or pale-brown silt loam, loam, or fine sandy loam, and it is underlain by mottled, gray, plastic clay. The profile of these soils is very strongly acid to strongly acid.

In this county the Susquehanna soils are associated with the Boswell and Cuthbert soils, but they are less well drained than those soils. The Susquehanna soils have a mottled B horizon, rather than a red B horizon like that of the Boswell and Cuthbert soils. The native vegetation was longleaf pine, low shrubs, and grasses, but the present vegetation is primarily longleaf pine and scrubby oak. Most of the acreage is in forest or is rapidly reverting to forest.

The following describes a profile of Susquehanna silt loam, 2 to 5 percent slopes, 3 miles southwest of Sanford (sec. 35, T. 6 N., R. 15 W.):

Ap—0 to 3 inches, yellowish-brown (10YR 5/4, moist) or pale-brown (10YR 6/3, dry) silt loam; weak, fine, crumb structure; friable when moist; many fine roots; some charcoal is present; abrupt, smooth boundary; very strongly acid.

B21g—3 to 9 inches, mottled pale-brown (10YR 6/3, moist or dry) and red (10R 4/6, moist, 10R 5/6, dry) clay; moderate, medium, angular and subangular blocky structure; plastic when wet; fine roots are common; clear, smooth boundary; very strongly acid.

B22g—9 to 24 inches, light brownish-gray (10YR 6/2, moist) or white (2.5Y 8/2, dry) silty clay; many, fine, prominent mottles of red (10R 4/8); moderate, medium, angular blocky structure; plastic when wet; a few roots; gradual, smooth boundary; strongly acid.

Cg—24 to 60 inches +, gray (5Y 6/1, moist) or white (5Y 8/2, dry) clay; many, medium, prominent and distinct mottles of red and yellowish red (10R 4/8 and 5YR 5/8); massive; plastic when wet; a few fine roots in upper part; strongly acid.

Red-Yellow Podzolic soils with fragipan.—The Ora, Prentiss, Savannah, Tilden, Bude, and Providence soils have characteristics like those of the Red-Yellow Podzolic soils. They have a fragipan at a depth of 18 to 36 inches, however, like that present in many Planosols. Mechanical analysis of samples of an Ora soil, reported in table 10, shows a sharp increase in clay in the B horizon of that soil.

The Ora, Prentiss, Savannah, and Tilden soils have profiles that are similar, but the Ora and Savannah soils are on uplands, and the Prentiss and Tilden soils are on terraces. The Ora and Tilden soils have a B horizon that is yellowish red to strong brown, and the Prentiss and Savannah soils have a B horizon that is yellowish brown. All of these soils formed in sandy sediments of the Coastal Plain, and they contain a large amount of sand. The Bude and Providence soils formed in a thin layer of loess over Coastal Plain sediments, and their upper horizons contain a large amount of silt.

The content of organic matter in the A1 horizon of the Savannah soils ranges from 1.55 to 1.65 percent, but it decreases to 0.32 percent at a depth of 24 inches. The cation-exchange capacity ranges from 3.20 milliequivalents per 100 grams of soil in the A1 horizon to 6.5 to 7 milliequivalents per 100 grams in the C horizon. The exchangeable potassium is low, and the available phosphorus is low or is present in only trace amounts (*2*).

In the silt fraction (2 to 50 microns in diameter), quartz is dominant in all horizons, and an illite type of clay mineral is present in significant amounts in all horizons. In many places small amounts of kaolinite, halloysite, and vermiculite are present, and there are trace amounts of montmorillonite. In the clay fraction (less than 2.0 microns in diameter) of the surface layer, vermiculite is the dominant mineral, but in all other horizons kaolinite is dominant (*2*). The data indicate that a large amount of quartz is present in the A1 through the B2 horizons.

No chemical or mineralogical data are available for the Ora, Prentiss, Tilden and Bude soils in this county. Because these soils were formed from the same kind of parent material as the Savannah soils and have been influenced by the same processes of soil formation, it seems likely that they would have the same chemical and mineralogical characteristics as those soils.

Likewise, no data to show cation-exchange capacity and mineralogy are available for the Providence soils in this county. Data obtained for soils formed in deep loess, however, indicate that the Providence soils probably have a higher base-exchange capacity and contain more of the 2:1 type of clay minerals than other soils in this group.

Bude Series

The Bude series consists of somewhat poorly drained Red-Yellow Podzolic soils that have a fragipan. These soils formed in a thin mantle of loess over sediments of the Coastal Plain.

The Bude soils are similar in drainage to the Pheba soils, but they contain more silt and less sand. They occur with the Providence and Henry soils in the northwestern part of the county. The Bude are similar to the Providence soils in texture, but they are more poorly drained. They are more brownish and better drained than the Henry soils.

The following describes a profile of Bude silt loam, 0 to 2 percent slopes, 4 miles west of Mount Olive (sec. 17, T. 9 N., R. 17 W.):

A1—0 to 4 inches, dark grayish-brown (10YR 4/2, moist) or grayish-brown (10YR 5/2, dry) silt loam; weak, fine, crumb structure; friable when moist; many fine roots and a few medium-sized roots; clear, smooth boundary; strongly acid.

A2—4 to 7 inches, brown (10YR 5/3, moist) or yellowish-brown (10YR 5/4, dry) silt loam; weak, fine, subangular blocky structure; friable when moist; many fine roots and a few medium-sized roots; a few wormholes and old root channels that are filled with material from the A1 horizon; many fine pore spaces; clear, smooth boundary; strongly acid.

TABLE 10.—*Mechanical analyses of an Ora fine sandy loam*[1]

[Analyses by Soil Survey Laboratory, Soil Conservation Service, Lincoln, Nebr.]

Soil and sample No.	Depth	pH 1:1	Organic carbon	Size class and diameter of particles in millimeters—							Other classes in millimeters—		
				Very coarse sand (2.0–1.0)	Coarse sand (1.0–0.5)	Medium sand (0.5–0.25)	Fine sand (0.25–0.1)	Very fine sand (0.1–0.05)	Silt (0.05–0.002)	Clay <0.002	0.02–0.002	0.2–0.02	>2
Ora fine sandy loam (S61-Miss-16-19):	*Inches*		*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
14799	0–8	5.1	1.04	0.3	3.2	8.4	32.2	8.8	43.3	3.8	21.5	51.2	Tr.
14800	15–30	4.7	.16	.4	2.9	7.9	18.9	5.2	44.8	19.9	28.4	32.9	Tr.
14801	36–60	4.8	.06	.7	5.6	15.7	38.2	10.1	22.1	7.6	12.8	42.5	Tr.
14802	60–80+	4.7	.06	.5	5.6	17.5	38.4	9.6	21.7	6.7	13.7	40.3	Tr.

[1] Concretions, fragments of organic matter, or other special kinds of material were not evident in the sand fractions.

B2—7 to 16 inches, yellowish-brown (10YR 5/4 to 10YR 5/6, moist) or brownish-yellow (10YR 6/6, dry) silty clay loam; few, fine, faint mottles of yellowish brown (10YR 5/8); moderate, fine, subangular blocky structure; friable to slightly firm when moist; many fine roots in the upper part; a few medium-sized roots; several old root channels that are filled with silty material from the A1 and A2 horizons; clear, smooth boundary; very strongly acid.

B'2 and A'2—16 to 48 inches, mottled yellowish-red (10YR 5/8, moist), light-gray (10YR 7/2, moist), reddish-yellow (7.5YR 7/6, moist), dark-brown (10YR 4/3, dry), yellow (10YR 7/6, dry), and light-gray (10YR 7/2, dry) silt loam; structureless; brittle and compact; a few small, nearly black concretions; many small voids; gradual, smooth boundary; very strongly acid.

C—48 to 60 inches +, mottled pale-brown (10YR 6/3, dry), brownish-yellow (10YR 6/8, dry), brown (7.5YR 5/4, dry), and red (2.5YR 5/8, dry) silty clay loam streaked with silt and sand; structureless; slightly sticky when moist; a few small, dark yellowish-brown (10YR 4/4) concretions; very strongly acid.

Ora Series

The Ora series is made up of moderately well drained to well drained Red-Yellow Podzolic soils that are yellowish red and friable in the upper part of the subsoil. These soils contain a fragipan that has coarse mottling or is varicolored. The Ora soils are nearly level to strongly sloping and are on uplands. They formed in acid, sandy parent material of the Gulf Coastal Plain. Their surface layer is commonly grayish brown to dark grayish brown, but the color grades to yellowish brown in the A2 and A3 horizons. The native vegetation on the Ora soils is predominantly longleaf, shortleaf, and loblolly pine, oak, hickory, and dogwood.

The Ora soils are associated with the Ruston, Savannah, and Pheba soils. Their drainage is similar to that of the Savannah soils, but they are better drained than the Pheba soils. They are less well drained than the Ruston soils, and they have a fragipan, which is lacking in the Ruston soils. The subsoil of the Ora soils is yellowish red, rather than yellowish brown like that of the Savannah and Pheba soils.

The following describes a profile of Ora fine sandy loam, 0 to 2 percent slopes, 1¼ miles north of the intersection of U.S. Highway No. 37 and U.S. Highway No. 84 and west of U.S. Highway No. 37 (sec. 12, T. 8 N., R. 15 W.):

A1—0 to 3 inches, dark grayish-brown (10YR 3/2, moist) or light brownish-gray (10YR 6/2, dry) fine sandy loam; weak, fine, crumb structure; friable when moist; many fine roots; clear, smooth boundary; very strongly acid.

A2—3 to 7 inches, grayish-brown (10YR 5/2, moist) or light-gray (10YR 7/2, dry) fine sandy loam; weak, fine, crumb structure; friable when moist; some worm casts; old root channels are filled with material from the A1 horizon; many fine roots; a few fine pores; clear, wavy boundary; very strongly acid.

B1—7 to 12 inches, yellowish-red (5YR 4/6, moist) or reddish-yellow (7.5YR 7/6, dry) loam; weak, fine, crumb structure; friable when moist; old root channels and wormholes filled with material from the A1 and A2 horizons; fine roots are common; clear, smooth boundary; very strongly acid.

B21t—12 to 20 inches, yellowish-red (5YR 4/6, moist) or reddish-yellow (7.5YR 6/6, dry) clay loam; moderate; fine and medium, subangular blocky structure; slightly sticky when moist; old root channels and wormholes are filled with material from the horizons above; fine roots are common; clear, smooth boundary; very strongly acid.

B22t—20 to 25 inches, yellowish-brown (10YR 5/6, moist) or reddish-yellow (7.5YR 7/6, dry) clay loam; a few, fine, faint mottles of light brownish gray (10YR 6/2), brownish yellow (10YR 6/8), and strong brown (7.5YR 5/6); moderate, fine and medium, subangular blocky structure; slightly sticky when wet; fine roots are common; old root channels are filled with material from the horizons above; gradual, wavy boundary; very strongly acid.

B3x—25 to 48 inches, yellowish-brown (10YR 5/6, moist) or reddish-yellow (7.5YR 6/8, dry) sandy clay loam with mottles of white (10YR 8/2, moist), red (10YR 4/6, moist), yellow (10YR 7/8, dry), and reddish yellow (7.5YR 6/8, dry); structureless; weakly cemented; many red (10YR 4/6) concretions; pockets of quartz sand; many pores and voids; very strongly acid.

C—48 to 80 inches, mottled white (10YR 8/2, moist), red (2.5YR 4/8, moist), and light-red (10R 6/6, moist) sandy loam; in about one-half of the acreage the soil material is white, in about one-fourth it is red, and in the rest it is light red; structureless; very friable; very strongly acid.

The following describes a profile of Ora silt loam, heavy substratum, 2 to 5 percent slopes, along State Highway No. 35, one-fourth of a mile north of U.S. Highway No. 84 (sec. 20, T. 8 N., R. 17 W.):

Ap—0 to 3 inches, dark-brown (10YR 4/3, moist) or pale-brown (10YR 6/3, dry) silt loam; weak, fine, crumb structure; friable when moist; many fine roots; abrupt, smooth boundary; very strongly acid.

B1—3 to 6 inches, yellowish-red (5YR 4/8, moist) or light-brown (7.5YR 6/4, dry) silt loam; weak, fine, crumb structure; friable when moist; many roots; a few pores; a few old root channels; abrupt, smooth boundary; very strongly acid.

B21t—6 to 9 inches, yellowish-red (5YR 4/8, moist) or yellowish-red (5YR 5/6, dry) silty clay loam; moderate, medium, subangular blocky structure; friable when moist and sticky when wet; roots are common; a few pores; clear, smooth boundary; very strongly acid.

B22t—9 to 21 inches, yellowish-red (5YR 4/8, moist) or yellowish-red (5YR 5/6, dry) silty clay loam; strong, medium, subangular blocky structure; friable when moist and sticky when wet; a few fine roots; pores and wormholes are common; clear, smooth boundary; very strongly acid.

B23t—21 to 29 inches, yellowish-red (5YR 4/8, moist) or reddish-yellow (5YR 6/8, dry) heavy silt loam; moderate, medium, subangular blocky structure; friable when moist and sticky when wet; a few fine pebbles; a few pores; clear, smooth boundary; very strongly acid.

B3x—29 to 53 inches, red (2.5YR 4/8, moist) or red (2.5YR 5/8, dry) loam; massive to weak, platy structure; compact and brittle, sticky when wet; a few fine quartz pebbles; vesicular pores; very strongly acid.

IIB—53 to 72 inches, dusky-red (10YR 3/4, moist) or dark-red (10YR 3/6, moist) silty clay; many, medium and prominent mottles of reddish yellow (7.5YR 6/8), very pale brown (10YR 7/3), and dark brown (10YR 4/3); moderate, medium, subangular blocky structure; firm when moist and plastic when wet; a few, fine and medium, hard iron concretions of dusky red (10R 3/3); very strongly acid.

Prentiss Series

The Prentiss series consists of moderately well drained Red-Yellow Podzolic soils that have a fragipan. These soils formed from old alluvium on stream terraces.

The Prentiss soils are associated with the well drained Cahaba soils, the well drained to moderately well drained Tilden soils, the somewhat poorly drained Stough soils, and the poorly drained Myatt soils. The Prentiss soils have a lighter colored B horizon than the Cahaba and Tilden soils, and they are more brownish and less mottled

than the Stough and Myatt soils. The Prentiss soils resemble the Savannah soils of the uplands.

The following describes a profile of a Prentiss fine sandy loam, 1 mile northeast of Hot Coffee (sec. 17, T. 9 N., R. 14 W.):

A1—0 to 4 inches, dark-gray (10YR 4/1, moist) fine sandy loam; weak, fine, crumb structure; friable when moist; many fine roots; many wormholes; abrupt, smooth boundary; strongly acid.

A2—4 to 7inches, brown (10YR 5/3, moist) fine sandy loam with streaks and pockets of dark grayish-brown fine sandy loam from the A1 horizon; weak, fine, crumb structure; friable when moist; many roots; many small wormholes; abrupt, smooth boundary; strongly acid.

B1—7 to 10 inches, yellowish-brown (10YR 5/4, moist) loam; weak, fine, subangular blocky structure; friable when moist; a few fine roots and several old root channels filled with material from the upper horizons; clear, smooth boundary; strongly acid.

B21—10 to 18 inches, yellowish-brown (10YR 5/8, moist) loam; moderate, medium, subangular blocky structure; friable when moist; fine roots are common; a few wormholes; clear, smooth boundary; strongly acid.

B22—18 to 23 inches, brownish-yellow (10YR 6/6, moist) loam; a few fine, faint mottles of pale brown (10YR 6/3) and light brownish gray (10YR 6/2); moderate, medium, subangular blocky structure; friable when moist; a few roots; a few root channels; abrupt, smooth boundary; strongly acid.

B'21x and A'2x—23 to 29 inches, mottled yellowish-brown (10YR 5/6, moist), pale-brown (10YR 6/3, moist), and red (2.5YR 4/8, moist) loam; color pattern (mottling) is medium and of faint and prominent contrast; moderate, medium, subangular blocky structure; moderately cemented but crushes to friable; compact and brittle; a few fine voids; clear, smooth boundary; strongly acid.

B'22xt—29 to 37 inches, light yellowish-brown (2.5Y 6/4, moist) heavy silt loam or light silty clay loam; many, medium, prominent mottles of strong brown (7.5YR 5/8) and yellowish red (5YR 5/8); moderate, medium, subangular blocky structure; firm when moist; a few voids; gradual, smooth boundary; strongly acid.

C—37 to 55 inches +, mottled light-gray (2.5Y 7/2, moist), strong-brown (7.5YR 5/8, moist), and yellowish-red (5YR 4/8, moist) fine sandy loam; mottles are medium and coarse, and the contrast is distinct and prominent; structureless; a few decaying roots; strongly acid.

Providence Series

The Providence series consists of moderately well drained Red-Yellow Podzolic soils that have a fragipan. The soils formed in a thin mantle of loess over formations of the Coastal Plain.

The Providence soils are similar in drainage to the Ora and Savannah soils, but they are more silty and less sandy.

Providence soils occur with Bude and Henry soils in the northwestern part of the county. They are similar to the Bude soils in texture, but they are better drained. The Providence soils are more brownish and better drained than the Henry soils.

The following describes a profile of Providence silt loam, 0 to 2 percent slopes, 4 miles west of Mount Olive (sec. 8, T. 9 N., R. 17 W.):

Ap—0 to 4 inches, dark-brown (10YR 4/3, moist) or light brownish-gray (10YR 6/2, dry) silt loam; weak, fine, crumb structure; friable when moist; many fine roots; abrupt, smooth boundary; strongly acid.

A2—4 to 6 inches, light brownish-gray (10YR 6/2, moist) or light-gray (10YR 7/2, dry) silt loam; weak, fine, crumb structure; weakly cemented in place but friable when crushed; many, small, dark, soft concretions; many fine roots; a few fine pores; clear, smooth boundary; very strongly acid.

B1 and A2—6 to 10 inches, yellowish-brown (10YR 5/6, moist) or very pale brown (10YR 7/3, dry) silt loam; weak, medium, subangular blocky structure; friable when moist; a few fine roots; many small pores; old root channels filled with material from the Ap and A2 horizons; clear, smooth boundary; very strongly acid.

B2t—10 to 22 inches, brownish-yellow (10YR 6/6, moist) or yellow (10YR 8/6, dry) silty clay loam; faces of peds coated with strong brown (7.5YR 5/6); weak, medium, subangular blocky structure; friable when moist and slightly sticky when wet; a few fine and medium roots; many fine pores; several old root channels filled with material from horizons above; clear, smooth boundary; very strongly acid.

B3x—22 to 30 inches, yellowish-brown (10YR 5/6, moist) or yellow (10YR 8/6, dry) silty clay loam; many, fine and medium mottles of strong brown (5YR 5/8); weak, medium, subangular blocky structure; slightly sticky when wet; compact and brittle; many, small and medium, dark concretions; a few roots and fine pores; old root channels are filled with material from the upper horizons; gradual, smooth boundary; very strongly acid.

C—30 to 60 inches, mottled yellowish-brown (10YR 5/8, moist), gray (10YR 6/1, moist), and light-gray (10YR 7/2, moist) silty clay loam; weak, fine and medium, subangular blocky structure; friable to firm; many yellowish-red (5YR 4/8) splotches that resemble concretions; extremely acid.

Savannah Series

The Savannah series consists of moderately well drained Red-Yellow Podzolic soils that have a fragipan. These soils formed in sandy sediments of the Coastal Plain. They are nearly level to moderately sloping and are on uplands.

The Savannah soils are associated with the Ora and Pheba soils. They are better drained than the Pheba soils, and they have a yellowish-brown subsoil, rather than a subsoil that is yellowish red like that of the Ora soils. The native vegetation on the Savannah soils is pine, oak, hickory, elm, dogwood, and grass.

The following describes a profile of Savannah loam, 0 to 2 percent slopes (sec. 1, T. 6 N., R. 15 W.):

A1—0 to 7 inches, grayish-brown (10YR 4/2, moist) loam; weak, fine, crumb structure; evidence of worm activity in the lower part of the horizon; very friable when moist; many fine roots; a few fine pieces of charcoal; a few fine, scattered pebbles; clear, smooth boundary; strongly acid.

B1—7 to 11 inches, pale-brown (10YR 6/3, moist) loam; weak, fine, subangular blocky structure; friable when moist; roots are common; many fine pieces of charcoal; much material from the A1 horizon is present in the uppermost 2 inches; many wormholes and fine pores; abrupt, smooth boundary; strongly acid.

B2—11 to 26 inches, yellowish-brown (10YR 5/6, moist) loam; moderate, medium, subangular blocky structure; slightly firm when moist; a few, soft concretions of strong brown (7.5YR 5/8); many wormholes; a few quartz pebbles; several old, decaying roots; a few fine pores; abrupt, smooth boundary; strongly acid.

B3x—26 to 38 inches, very pale brown (10YR 7/4, moist) loam; common, medium and prominent mottles of yellowish red (5YR 4/8), dusky red (10R 3/4), and faint white (10YR 8/2); structureless; compact and brittle; many fine voids; clear, smooth boundary; very strongly acid.

C—38 to 60 inches +, yellowish-brown (10YR 5/6, moist) loam; many, medium, prominent mottles of red (2.5YR 4/8) and yellowish red (5YR 4/8); structureless; friable; very strongly acid.

Tilden Series

The Tilden series consists of moderately well drained to well drained Red-Yellow Podzolic soils that have a fragipan. These soils are associated with the Cahaba, Prentiss, and Stough soils. In texture and color the upper part of the subsoil of the Tilden soils is similar to that of the Cahaba soils, but the Tilden soils are less well drained than the Cahaba soils, and they have a fragipan. They are more brownish or more reddish than the Prentiss soils, and they are more reddish and better drained than the Stough soils. The profile of the Tilden soils resembles that of the Ora soils of the uplands. In this county the Tilden soils occur in small areas.

The following describes a profile of Tilden fine sandy loam, 0 to 2 percent slopes, 1 mile southeast of Hot Coffee (sec. 29, T. 9 N., R. 14 W.):

Ap—0 to 5 inches, grayish-brown (10YR 5/2, moist) fine sandy loam; weak, fine, granular structure; very friable when moist; many fine roots; a few wormholes; many ant channels; pockets of material from the B1 horizon are mixed in the lower part; abrupt, smooth boundary; strongly acid.

A2—5 to 8 inches, yellowish-brown (10YR 5/6, moist) silt loam with pockets and streaks of grayish-brown fine sandy loam from the Ap horizon; weak, fine, subangular blocky structure; friable when moist; many fine roots; many wormholes and ant channels; abrupt, smooth boundary; strongly acid.

B21—8 to 19 inches, strong-brown (7.5YR 5/6, moist) loam; moderate, medium, subangular blocky structure; friable to slightly firm when moist; many fine roots; a few fine pieces of charcoal; several root channels filled with material from the Ap horizon; clear, smooth boundary; strongly acid.

B22—19 to 26 inches, yellowish-brown (10YR 5/8, moist) loam; few, medium, faint mottles of strong brown (7.5YR 5/8); moderate, fine and medium, subangular blocky structure; friable when moist; a few roots; clear, smooth boundary; strongly acid.

B31x—26 to 38 inches, yellowish-brown (10YR 5/8, moist) fine sandy loam; many, medium, faint mottles of very pale brown (10YR 7/4) and prominent mottles of yellowish red (5YR 5/6); weak, thick, platy structure breaking to weak, medium, subangular blocky; compact and brittle; many voids; clear, smooth, boundary; strongly acid.

B32x—38 to 56 inches, mottled very pale brown (10YR 7/4), yellow (10YR 8/6), reddish-yellow (7.5YR 6/8), and pale-yellow (2.5Y 7/4) fine sandy loam; structureless; weakly cemented; voids are common; gradual, smooth boundary; strongly acid.

C—56 to 68 inches +, mottled white (10YR 8/1), brownish-yellow (10YR 6/6), brown (7.5YR 5/4), and red (2.5YR 4/8) sandy loam; structureless; very friable when moist and loose when dry; strongly acid.

Red-Yellow Podzolic soils intergrading toward Low-Humic Gley soils.—The Falkner soils are in the Red-Yellow Podzolic great soil group, but they have some characteristics of Low-Humic Gley soils. These soils have a gleyed, mottled layer or layers, which indicate that they are intergrading toward the Low-Humic Gley great soil group.

The Falkner soils have a thin A1 and A2 horizon of gray to yellowish-brown, friable silt loam, but the A2 horizon is lighter colored than the A1. The B2 horizon is mottled gray silty clay loam.

No chemical or mineralogical data are available for these soils. However, the soils have a low pH value, are low in exchangeable potassium and available phosphorus, and are low in content of organic matter. These soils contain some 2:1 type of clay minerals, as indicated by the swelling of the soils when wet and their shrinking when dry.

Falkner Series

The Falkner series consists of somewhat poorly drained Red-Yellow Podzolic soils intergrading toward Low-Humic Gley soils. These soils formed in a layer of thin loess over clay of the Coastal Plain. They are nearly level and are on the lower slopes of the hills. The Falkner soils are associated with the Bude and Henry soils and are generally adjacent to the Susquehanna or Boswell soils. In drainage they are similar to the Bude soils, but they are better drained than the Henry soils. The Falkner soils lack the fragipan that is characteristic of the Bude and Henry soils. Unlike the Susquehanna and Boswell soils, which formed in clayey Coastal Plain material, the Falkner soils formed partly in loess. The native vegetation of the Falkner soils is post oak, blackjack oak, white oak, hickory, elm, and scattered pines.

The following describes a profile of Falkner silt loam, 0 to 2 percent slopes, on Sunset road, 2 miles west of Ora (sec. 16, T. 8 N., R. 16 W.):

A1—0 to 3 inches, gray (10YR 5/1, moist) silt loam; weak, fine, crumb structure; friable when moist; many small black concretions; many fine roots; material from the B2 horizon has been transported to the lower part of the A1 horizon; abrupt, wavy boundary; strongly acid.

BA2—3 to 12 inches, light yellowish-brown (2.5Y 6/4, moist) silt loam; common, medium, faint mottles of light brownish gray (10YR 6/2) and yellowish brown (10YR 5/6); weak, medium, subangular blocky structure; friable when moist; a few red (2.5YR 4/8) concretions; many, fine and medium-sized roots; a few old root channels filled with decaying roots; many voids; a few wormholes; abrupt, smooth boundary; strongly acid.

B21—12 to 16 inches, mottled pale-brown (10YR 6/3, moist), light yellowish-brown (10YR 6/4, moist), and red (2.5YR 4/6, moist) silty clay loam; faces of the peds are coated with light-gray (2.5Y 7/2, moist) silt; moderate, medium, subangular blocky structure; firm when moist; many voids; a few roots; abrupt, smooth boundary; strongly acid.

IIB22t—16 to 22 inches, light brownish-gray (2.5Y 6/2, moist) and grayish-brown (10YR 5/2, moist) clay; many, prominent mottles of yellowish red (5YR 4/8, moist) and red (2.5YR 4/6, moist); strong, medium, subangular blocky structure; clay skins coat the outside of peds; firm when moist and plastic when wet; a few voids; a few roots; gradual, smooth boundary; strongly acid.

IIB3—22 to 37 inches +, light brownish-gray (2.5Y 6/2, moist) clay; many, medium, distinct mottles of brownish yellow (10YR 6/8, moist); massive; firm when moist and plastic when wet; a few roots; strongly acid.

Alluvial soils

The soils in this group developed from transported and recently deposited material. They are characterized by little or no modification of the original material by soil-forming processes. The soils of the Collins, Falaya, Iuka, Mantachie, Ochlockonee, and Vicksburg series are in the Alluvial great soil group.

The Ochlockonee and Vicksburg soils are well drained, the Collins and Iuka soils are moderately well drained, and the Falaya and Mantachie soils are somewhat poorly drained. The Ochlockonee, Iuka, and Mantachie soils formed in recent alluvium of Coastal Plain origin. The Collins, Vicksburg, and Falaya soils formed in silty, recent alluvium that originated from soils underlain by a shallow layer of loess.

Organic matter has accumulated in the A horizon, but the soils of this great soil group are all low in exchangeable potassium and available phosphorus. They are very strongly acid to medium acid. There is only a slight difference, if any, in texture among the different horizons of the Collins, Falaya, and Vicksburg soils. The horizons of the Iuka, Mantachie, and Ochlockonee soils differ in texture because of stratification of the recent alluvium.

Collins Series

The Collins series consists of moderately well drained Alluvial soils. These soils formed in silty material washed from uplands covered by a thin layer of loess.

The Collins soils are similar to the Vicksburg soils in texture, but they are less well drained. They are better drained and more brownish than the Falaya and Waverly soils. The Collins soils occur with the Iuka soils in the northwestern and western parts of the county. They are similar to those soils in drainage, but they are more silty and lack the sandy texture of the Iuka soils.

The following describes a profile of a Collins silt loam south of Lone Star (sec. 5, T. 7 N., R. 17 W.):

A1—0 to 4 inches, dark grayish-brown (10YR 4/2, moist) silt loam; weak, fine, granular structure; friable when moist; clear, smooth boundary; strongly acid.

C1—4 to 20 inches, brown (10YR 4/3, moist) silt loam; structureless; friable when moist; clear, smooth boundary; strongly acid.

C2—20 to 32 inches, yellowish-brown (10YR 5/4, moist) silt loam; common, medium, faint to distinct mottles of pale brown (10YR 6/3) and strong brown (7.5YR 5/6); structureless; friable when moist; clear, smooth boundary; strongly acid.

C3g—32 to 60 inches, light brownish-gray (10YR 6/2, moist) heavy silt loam or silty clay loam; many, medium, distinct mottles of yellowish brown (10YR 5/8) and brown (10YR 5/3); massive; a few, fine, soft, black concretions; strongly acid.

Falaya Series

The Falaya series consists of somewhat poorly drained Alluvial soils. These soils formed in silty material washed from uplands covered by a thin layer of loess.

The Falaya soils are similar to the Vicksburg and Collins soils, but they are more grayish and more poorly drained. They are better drained than the Waverly soils. They occur with the Mantachie soils in the northern part of the county. They are similar to those soils in drainage, but the Falaya soils are more silty and lack the sandy texture of the Mantachie soils.

The following describes a profile of a Falaya silt loam, 2½ miles northeast of Mount Olive on the north side of State Highway No. 35:

A11—0 to 3 inches, brown or dark-brown (10YR 4/3, moist) silt loam; weak, fine, granular structure; friable when moist; abrupt, smooth boundary; strongly acid.

A12—3 to 7 inches, dark grayish-brown (10YR 4/2, moist) silt loam; weak, fine, granular structure; friable when moist; clear, smooth boundary; strongly acid.

C1—7 to 26 inches, yellowish-brown (10YR 5/4, moist) silt loam; common, fine, distinct mottles of light brownish gray (10YR 6/2) and gray (10YR 6/1); structureless; friable when moist; gradual, smooth boundary; strongly acid.

C2g—26 to 54 inches, light brownish-gray (10YR 6/2, moist) heavy silt loam; many, medium, distinct mottles of dark brown (7.5YR 3/2) and strong brown (7.5YR 5/8); structureless; friable; many, small, black concretions; strongly acid.

Iuka Series

The Iuka series consists of moderately well drained soils formed in moderately coarse textured and medium-textured alluvium. The soils are in the Alluvial great soil group.

They are similar to the Ochlockonee soils in texture, but they are less well drained. They are better drained and more brownish than the Mantachie and Bibb soils. The Iuka soils occur with the Collins soils in the northwestern and western parts of the county. They are similar to the Collins soils in drainage, but they contain more sand.

The following describes a profile of an Iuka silt loam south of Lone Star (sec. 5, T. 7 N., R. 17 W.):

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2, moist) silt loam; weak, fine and medium, crumb structure; friable when moist; many roots; abrupt, smooth boundary; strongly acid.

C1—7 to 10 inches, brown (10YR 5/3, moist) silt loam; weak, medium, crumb structure; friable when moist; many roots; clear, wavy boundary; strongly acid.

C2—10 to 24 inches, yellowish-brown (10YR 5/4, moist) silt loam; structureless; friable when moist; abrupt, smooth boundary; strongly acid.

C2—24 to 30 inches, yellowish-brown (10YR 5/6, moist) silt loam with pockets of brownish-yellow (10YR 6/6, moist) and pale-brown (10YR 6/3, moist) fine sandy loam; structureless; friable; abrupt, smooth boundary; strongly acid.

C3—30 to 56 inches, light brownish-gray (10YR 6/2, moist) silt loam with pockets of pale-yellow (2.5Y 7/4) fine sandy loam in the uppermost 6 inches; many, fine, distinct mottles of light brown (7.5YR 6/4) and strong brown (7.5YR 5/6), increasing in number with increasing depth; structureless; friable when moist; strongly acid.

Mantachie Series

The Mantachie series consists of somewhat poorly drained soils. These soils formed in moderately coarse textured and medium-textured alluvium.

The Mantachie soils are similar to the Ochlockonee and Iuka soils in texture, but they are less well drained. They are better drained and have a more brownish color than the Bibb soils. The Mantachie soils occur with the Falaya soils in the northern part of the county. They are similar to the Falaya soils in drainage, but they contain more sand.

The following describes a profile of a Mantachie silt loam, 2½ miles northeast of Mount Olive on the north side of State Highway No. 35:

Ap1—0 to 3 inches, dark-gray (10YR 4/1, moist) silt loam; weak, fine, crumb structure; friable when moist; many roots; a few wormholes and fine pores; abrupt, smooth boundary; medium acid.

Ap2—3 to 7 inches, grayish-brown (10YR 5/2, moist) silt loam stratified with light brownish-gray fine sandy loam; weak, fine, crumb structure; friable when moist; roots are common; a few fine pores; abrupt, smooth boundary; strongly acid.

C1g—7 to 27 inches, light brownish-gray (10YR 6/2, moist) silt loam; common, fine, distinct mottles of strong brown (7.5YR 5/6); weak, fine, crumb structure; friable when moist; a few roots; a few fine pores; the depth to the water table is 15 inches; abrupt, smooth boundary; strongly acid.

C2—27 to 33 inches, dark-gray (10YR 4/1, moist) silt loam; a few, fine distinct mottles of dark brown (7.5YR 3/2); structureless; friable when moist; a few roots; clear, smooth boundary; strongly acid.

C3—33 to 48 inches, pale-brown (10YR 6/3, moist) silt loam; many, fine, faint mottles of yellowish brown (10YR 5/4); structureless; slightly sticky when wet; many

small concretions; gradual, smooth boundary; strongly acid.

C4g—48 to 60 inches, light brownish-gray (10YR 6/2, moist) silt loam or loam; structureless; friable when moist; many brown mottles, mostly around the concretions; many, small, black concretions; the amount of sand increases with increasing depth; strongly acid.

Ochlockonee Series

In the Ochlockonee series are well-drained soils of the Alluvial great soil group. These soils formed in moderately coarse textured and medium-textured alluvium.

The Ochlockonee soils are associated with moderately well drained Iuka, somewhat poorly drained Mantachie, and poorly drained Bibb soils. In texture, they are similar to all of those soils. The Ochlockonee soils also occur with the well-drained Vicksburg soils in the northwestern part of the county. They are similar to those soils in drainage, but they contain much more sand.

The following describes a profile of an Ochlockonee fine sandy loam (sec. 14, T. 9 N., R. 15 W.):

Ap—0 to 6 inches, dark-brown (10YR 3/2, moist) fine sandy loam; weak, fine, granular structure; very friable when moist; many worms and wormholes; a few small, scattered pebbles; many roots; abrupt, smooth boundary; strongly acid.

AC—6 to 10 inches, mixed dark-brown (10YR 4/3, moist) and yellowish-brown (10 YR 5/4, moist) fine sandy loam; weak. fine, granular structure; very friable when moist; many worms and wormholes; a few scattered pebbles; roots are common; abrupt, smooth boundary; strongly acid.

C1—10 to 38 inches, strong-brown (7.5YR 5/6, moist) sandy loam; structureless; very friable when moist; roots are common; clear, smooth boundary; strongly acid.

C2—38 to 60 inches, yellowish-brown (10 YR 5/8, moist) loam streaked with very pale brown (10YR 8/3, moist) sand; common, fine and medium, distinct mottles of strong brown (7.5YR 5/8); structureless; slightly firm when moist; a few roots; abrupt, wavy boundary; strongly acid.

C3—60 inches +, strong-brown (7.5YR 5/8, moist) loamy sand; single grain; very friable when moist; strongly acid.

Vicksburg Series

In the Vicksburg series are well-drained Alluvial soils. These soils formed in silty material washed from uplands covered by a thin layer of loess.

The Vicksburg soils have texture similar to that of the Collins, Falaya, and Waverly soils, but they are more brownish than those soils and are better drained. They occur with the Ochlockonee soils in the northwestern part of the county. Their drainage is similar to that of the Ochlockonee soils, but they are more silty and lack the sandy texture of the Ochlockonee soils.

The following describes a profile of a Vicksburg silt loam on the flood plains of Dry Creek (sec. 8, T. 8 N., R. 17 W.):

Ap—0 to 6 inches, dark-brown (10YR 4/3, moist) silt loam; weak, fine, crumb structure; friable when moist; abrupt, smooth boundary; strongly acid to medium acid.

C1—6 to 14 inches, dark-brown (10YR 4/3, moist) silt loam; structureless; friable when moist; a few pieces of charcoal are present; clear, smooth boundary; strongly acid.

C2—14 to 48 inches, dark-brown (7.5YR 4/4, moist) silt loam; structureless; friable when moist; a few scattered pockets of brown (10YR 5/3) silt loam; a few pieces of charcoal; clear, smooth boundary; strongly acid.

C3—48 to 60 inches +, dark-brown (7.5YR 4/4, moist) heavy silt loam; structureless; friable when moist; small, black concretions are common and increase in number with increasing depth; strongly acid.

Planosols

Planosols are a group of soils of the intrazonal order having one or more horizons abruptly separated from, and sharply contrasting to, an adjacent horizon because of cementation, compaction, or a high content of clay (*5*). The Henry, Pheba, and Stough soils are in this great soil group because they have a hard, brittle horizon that contrasts sharply with the adjoining horizons. The Leaf soils are also classed as Planosols because they have a marked increase in clay in the B horizon.

The Pheba, Stough, and Leaf soils formed in sediments of the Coastal Plain, and the Henry soils formed in loess. The Pheba and Henry soils are on uplands, and the Stough and Leaf soils are on terraces.

No chemical or mineralogical data are available for these soils in Covington County. The pH value ranges from 4.5 to 5.5, however, and the exchangeable potassium and available phosphorus are low. The soils are also low in content of organic matter. Following are descriptions of Planosols that have a fragipan.

Henry Series

The Henry series consists of poorly drained Planosols formed in a thin layer of loess over Coastal Plain material. These soils are in flat areas or depressions and on uplands.

The Henry soils are associated with the moderately well drained Providence and the somewhat poorly drained Bude and Falkner soils. They are more poorly drained and more grayish than those soils. In the lower part of the subsoil, they have a fragipan, rather than plastic clay like that in the Falkner soils. The Henry soils are scattered throughout the northwestern part of the county. They are only of slight importance to agriculture.

The following describes a profile of a Henry silt loam, 4 miles west of Mount Olive (sec. 18, T. 9 N., R. 17 W.):

A1—0 to 3 inches, gray (10YR 5/1, moist) silt loam; weak, fine, crumb structure; friable when moist; many fine roots and a few medium-sized roots; abrupt, smooth boundary; very strongly acid.

A2g—3 to 6 inches, light brownish-gray (2.5Y 6/2, moist) silt loam; weak, fine, crumb structure; slightly firm in place but crushes to friable when moist; a few roots; a few small, black concretions; abrupt, smooth boundary; very strongly acid.

A2g and B—6 to 13 inches, light brownish-gray (2.5Y 6/2, moist) silt loam with vertical streaks of gray (10YR 6/1, moist) silt; many, fine and medium, prominent mottles of red (2.5YR 4/8) and distinct mottles of yellowish brown (10YR 5/4); weak, fine and medium, subangular blocky structure; friable when moist; a few black concretions; a few roots; clear, smooth boundary; very strongly acid.

A'2x and B'21x—13 to 20 inches, mottled light-gray (2.5Y 7/2, moist), pale-brown (10YR 6/3, moist), yellowish-brown (10YR 5/4, moist), and strong-brown (7.5YR 5/8, moist) silt loam; vertical streaks of gray (10YR 6/1, moist) silt; moderate, medium, subangular blocky structure; firm; compact and brittle; many voids; abrupt, smooth boundary; very strongly acid.

B'22xgt—20 to 26 inches, gray (10YR 6/1, moist) silty clay loam; many, medium, prominent mottles of strong brown (7.5YR 5/8) and faint mottles of pale brown (10YR 6/3); moderate, medium, subangular blocky

structure; firm; compact and brittle; clear, smooth boundary; very strongly acid.

B'23xtg—26 to 34 inches, gray (10YR 6/1, moist) silty clay loam; many, fine and medium, prominent mottles of dark red (2.5YR 3/6) and yellowish red (5YR 4/8) and few, medium, faint mottles of pale brown (10YR 6/3); moderate, medium, subangular blocky structure; firm; compact and brittle; a few voids; clear, wavy boundary; very strongly acid.

IIC1—34 to 40 inches, gray (5Y 5/1) clay; many, medium and coarse mottles of strong brown (7.5YR 5/8) and yellowish red (5YR 5/8); streaks of light-gray (10YR 7/1, moist) silt; weak, fine, subangular blocky structure; very firm when moist; plastic; clear, smooth boundary; strongly acid.

IIC2—40 to 61 inches +, light olive-gray (5Y 6/2, moist) or olive-gray (5Y 5/2, moist) clay; many, medium and coarse, prominent mottles of yellowish red (5YR 5/8); massive; very firm; plastic; strongly acid.

Pheba Series

The Pheba series consists of somewhat poorly drained Planosols formed in Coastal Plain material. These soils are nearly level to gently sloping and are on uplands.

The Pheba soils are associated with the Ora, Savannah, and Stough soils. They are more poorly drained than the Ora and Savannah soils, and their B2 horizon is less reddish than that of the Ora soils. Pheba soils are similar to the Stough soils of the stream terraces.

The Pheba soils occupy only a small part of the total acreage of the county, and they are not locally important to agriculture. The native vegetation is pines and hardwoods.

The following describes a profile of Pheba loam, 0 to 2 percent slopes, 1½ miles suthwest of Sanford (sec. 13, T. 6 N., R. 15 W.):

Ap—0 to 5 inches, grayish-brown (10YR 5/2, moist) loam; weak, fine, crumb structure; friable when moist; a few wormholes; a few small, brown and black concretions; a few fine, scattered pebbles; many fine roots; abrupt, smooth boundary; strongly acid.

B1—5 to 9 inches, light yellowish-brown (10YR 6/4, moist) silt loam; weak, medium, subangular blocky structure; friable when moist; a few fine roots; many wormholes; much material from the Ap horizon has moved down into the upper part of this horizon; clear, smooth boundary; strongly acid.

B2—9 to 17 inches, yellowish-brown (10YR 5/6, moist) loam or silty clay loam; moderate, medium, subangular blocky structure; firm when moist; a few fine roots in upper part; material from Ap horizon is present in the uppermost 3 inches; concretions are common and increase in number with increasing depth; a few fine, scattered pebbles; clear, smooth boundary; strongly acid.

A'2x and B'21x—17 to 27 inches, gray (10YR 6/1, moist), pale-brown (10YR 6/3, moist), and strong-brown (7.5YR 5/6, moist) loam; moderate, medium, subangular blocky structure; compact and brittle; many voids; yellowish-red (5YR 4/6) concretions are common; clear, smooth boundary; strongly acid.

B'22x—27 to 37 inches, yellowish-brown (10YR 5/8, moist), brownish-yellow (10YR 6/8, moist), and reddish-brown (5YR 4/4, moist) loam; moderate, medium, subangular blocky structure; compact and brittle; soft, yellowish-red (5YR 4/6) concretions are common; some voids; a few fine pores; gradual, smooth boundary; strongly acid.

C—37 to 60 inches +, mottled light brownish-gray (10YR 6/2, moist), strong-brown (7.5YR 5/8, moist), yellowish-red (5YR 4/8, moist), and red (2.5YR 4/8, moist) loam; structureless; firm when moist; strongly acid.

Stough Series

The Stough series consists of somewhat poorly drained soils formed in old alluvium on stream terraces. These soils belong to the Planosol great soil group.

The Stough soils are associated with the Cahaba, Tilden, Prentiss, and Myatt soils. They are less well drained than the Cahaba, Tilden, and Prentiss soils, but they are similar in drainage to the Myatt soils. They have a fragipan, which is lacking in the Cahaba soils, and they are less mottled and have a less grayish B2 horizon than the Myatt soils. The Stough soils resemble the Pheba soils, but they are on stream terraces rather than on uplands.

The following describes a profile of Stough fine sandy loam, 0 to 2 percent slopes, one-half mile south of Hot Coffee (sec. 20, T. 9 N., R. 14 W.):

A1—0 to 5 inches, dark grayish-brown (10YR 4/2, moist) fine sandy loam; weak, fine and medium, granular structure; friable when moist; many roots; many wormholes and ant channels; a few pieces of charcoal; a few, fine pebbles; abrupt, smooth boundary; strongly acid.

A2—5 to 11 inches, light yellowish-brown (10YR 6/4, moist) fine sandy loam; streaks and pockets of dark grayish-brown material from the A1 horizon; few, fine, faint mottles of yellowish brown (10YR 5/8); weak, fine, granular structure; slightly firm in place but crushes to friable when moist; a few, small, very dark grayish-brown concretions; a few fine pores; fine and medium-sized roots are common; clear, smooth boundary; strongly acid.

B21—11 to 18 inches, yellowish-brown (10YR 5/8, moist) loam; few, fine, faint mottles of yellow; weak, medium, subangular blocky structure; friable when moist; roots are common; several partly decayed roots; a few pieces of charcoal; clear, smooth boundary; strongly acid.

B22—18 to 25 inches, mottled brownish-yellow (10YR 6/6, moist), very pale brown (10YR 7/3), and strong-brown (7.5YR 5/8) loam; moderate, medium, subangular blocky structure; friable when moist; a few, small, soft, red (2.5YR 4/8) concretions; a few pieces of charcoal; roots are common; abrupt, smooth boundary; strongly acid.

A'2x and B'2x—25 to 37 inches, light-gray (10YR 7/1, moist) loam; many, medium, prominent mottles of yellowish red (5YR 5/8) and distinct mottles of strong brown (7.5YR 5/8); weak and moderate, medium, subangular blocky structure; friable when crushed; compact and brittle; many voids; a few small concretions; gradual, wavy boundary; strongly acid.

Cg—37 to 60 inches, gray (10YR 6/1, moist) loam; many, medium and coarse, distinct mottles of strong brown (7.5YR 5/8); structureless; slightly firm when moist; a few fine pores; strongly acid.

Following is a description of Planosols that have a claypan.

Leaf Series

The Leaf series consists of poorly drained Planosols that contain a claypan. These soils formed in old alluvium on stream terraces.

The Leaf soils occur mainly with the Myatt, Izagora, Prentiss, and Stough soils. Their drainage is similar to that of the Myatt soils, but their lower horizons are finer textured. They are more grayish and more poorly drained than the Izagora soils, and the upper part of their B horizon is less friable. The Leaf soils are more poorly drained than the Prentiss and Stough soils, and they have firmer and finer textured B and C horizons. They also have a

claypan instead of the fragipan that is characteristic of the Prentiss and Stough soils. The Leaf soils are not locally important to agriculture.

The following describes a profile of Leaf silt loam (sec. 6, T. 7 N., R. 15 W.):

A1—0 to 4 inches, dark-gray (5Y 4/1, moist) silt loam; common, fine, prominent mottles of dark brown (7.5YR 3/2); moderate, fine, subangular blocky structure; friable when moist; abrupt, smooth boundary; strongly acid.

A2g—4 to 7 inches, light-gray (2.5Y 7/2, moist) fine sandy loam; common, medium, prominent mottles of dark brown (7.5YR 3/2); structureless; friable when moist; abrupt, smooth boundary; strongly acid.

A3g—7 to 10 inches, light brownish-gray (2.5Y 6/2) fine sandy loam; common, medium, distinct mottles of yellowish brown (10YR 5/8); structureless; friable when moist; reddish-brown concretions are common; clear, smooth boundary; strongly acid.

B1g—10 to 18 inches, light-gray (5Y 6/1, moist) sandy clay loam; many, medium, prominent mottles of brownish yellow (10YR 6/6); moderate, fine, angular blocky structure; slightly sticky when wet; clear, wavy boundary; strongly acid.

B2g—18 to 31 inches, light-gray (5Y 6/1, moist) clay; many, medium, prominent mottles of strong brown (7.5YR 5/8); moderate, medium, angular blocky structure; plastic when wet; clear, smooth boundary; very strongly acid.

B3g—31 to 42 inches +, light-gray (5Y 6/1, moist) clay; many, medium, prominent mottles of strong brown (7.5YR 5/8); weak, fine, angular blocky structure; slightly plastic when wet; very strongly acid.

Low-Humic Gley soils

Low-Humic Gley soils are poorly drained. They are in the intrazonal order. These soils have a thin surface horizon that is moderately high in organic matter. Their subsurface layer is strongly gleyed, and its texture is like that of the surface layer.

The Bibb, Myatt, and Waverly soils are typical of the Low-Humic Gley soils in this county.

Bibb Series

The Bibb series consists of poorly drained soils formed in moderately coarse textured and medium-textured alluvium. These soils are similar in texture to the well drained Ochlockonee, the moderately well drained Iuka, and the somewhat poorly drained Mantachie soils. They occur with the Waverly soils in the northwestern part of the county. They are similar to the Waverly soils in drainage, but they contain more sand.

The following describes a profile of Bibb silt loam, 0 to 2 percent slopes (sec. 31, T. 9 N., R. 14 W.):

Ag—0 to 3 inches, grayish-brown (2.5Y 5/2, moist) silt loam; several thin layers of decaying leaves; weak, fine, crumb structure; friable when moist and slightly sticky when wet; many roots; abrupt, smooth boundary; strongly acid.

C1g—3 to 15 inches, light-gray (2.5Y 7/2, moist) silt loam; many, medium, prominent mottles of strong brown (5YR 4/6 to 5YR 5/8); structureless; friable when moist; a few roots; clear, wavy boundary; strongly acid.

C2g—15 to 24 inches, gray (5Y 5/1, moist) silty clay loam; many, medium, prominent mottles of strong brown (7.5YR 5/8); massive; firm when moist; clear, smooth boundary; strongly acid.

C3g—24 to 34 inches, gray (5Y 6/1, moist) silty clay loam; many, medium, prominent mottles of strong brown (7. 5YR 5/8) and yellowish red (5YR 4/8); massive; firm when moist; clear, smooth boundary; strongly acid.

C4g—34 to 46 inches, gray (5Y 6/1, moist sandy clay loam; many, coarse, prominent mottles of yellowish red (5YR 4/6); massive; firm when moist; clear, smooth boundary; strongly acid.

C5g—46 to 57 inches, gray (5Y 6/1, moist) fine sandy loam; many, coarse, prominent mottles of yellowish red (5YR 4/8) and reddish brown (5YR 5/4); structureless; friable when moist; strongly acid.

Myatt Series

The Myatt series consists of poorly drained soils formed in old alluvium on stream terraces. These soils are associated with the well drained Cahaba, the well drained to moderately well drained Tilden, the moderately well drained Prentiss, the somewhat poorly drained Stough, and the poorly drained Leaf soils. The Myatt soils are grayer, more mottled, more gleyed, and more shallow over the fragipan than the associated soils. They also have more concretions in the profile than any of the associated soils, except the Leaf. They are coarser textured than the Leaf soils.

The following describes a profile of a Myatt silt loam, 2.5 miles north of Sanford (sec. 8, T. 6 N., R. 14 W.):

Apg—0 to 6 inches, gray (10YR 5/1, moist) or light brownish-gray (2.5Y 6/2, moist) silt loam; weak, fine, crumb structure; friable when moist; many black concretions that increase in number with increasing depth; a few, medium-sized pieces of charcoal; many roots; abrupt, smooth boundary; medium acid.

A2g—6 to 10 inches, light-gray (2.5Y 7/2, moist) silt loam; many, fine and medium, prominent mottles of dark grayish brown (10YR 4/2) and yellowish brown (10YR 5/8); weak, medium, subangular blocky structure; friable when moist; many, fine and medium, black concretions; a few pieces of charcoal; roots are common; abrupt, smooth boundary; strongly acid.

B21g—10 to 17 inches, light-gray (5Y 7/2, moist) heavy silt loam or silty clay loam; many, medium, prominent mottles of brown (10YR 5/3) and yellowish brown (10YR 5/8); moderate, medium, subangular blocky structure; firm when moist; many, fine and medium, black and dark reddish-brown (5YR 3/2) concretions; a few roots; clear, smooth boundary; strongly acid.

B22xg—17 to 35 inches, light brownish-gray (5Y 6/2) silty clay loam; many, medium and coarse, prominent mottles of light yellowish brown (10YR 6/4) and light reddish brown (5YR 6/4); moderate, medium, subangular blocky structure; firm; compact and brittle; many, black and reddish-brown (5YR 5/3) concretions; a few pieces of charcoal; clear, smooth boundary; strongly acid.

Cg—35 to 50 inches +, gray (5Y 6/1, moist) silty clay; many, medium, prominent mottles of strong brown (7.5YR 5/8); weak, medium, subangular blocky structure; firm when moist; a few concretions; strongly acid.

Waverly Series

The soils of the Waverly series are poorly drained. They formed in silty alluvium washed from uplands covered by a thin layer of loess.

The Waverly soils are similar in texture to the well drained Vicksburg, the moderately well drained Collins, and the somewhat poorly drained Falaya soils, but they are more grayish and more poorly drained. They occur with the Bibb soils in the northwestern part of the county. The Waverly soils are similar in drainage and color to the Bibb soils, but they are more silty and contain less sand.

The following describes a profile of a Waverly silt loam (sec. 31, T. 9 N., R. 14 W.):

A1—0 to 2 inches, dark grayish-brown (10YR 4/2, moist) silt loam; structureless; friable when moist; clear, smooth boundary; strongly acid.

ACg—2 to 7 inches, light brownish-gray (2.5Y 6/2, moist) silt loam; many, fine and medium, distinct mottles of yellow (10YR 7/6) and brown (10YR 5/3); structureless; friable when moist; a few small, nearly black concretions; clear, smooth boundary; strongly acid.

C1g—7 to 25 inches, light-gray (2.5Y 7/2, moist) silt loam; many, medium, distinct mottles of brownish yellow (10YR 6/8) and brown (10YR 5/3); structureless; friable when moist; many dark brown to very dark brown concretions; clear, wavy boundary; strongly acid.

C2g—25 to 50 inches +, olive-gray (5Y 5/2) to grayish-brown (2.5Y 5/2) silty clay loam; many, medium, distinct mottles of yellowish brown (10YR 5/6) and yellow (10YR 7/6); massive; firm when moist; a few very dark brown concretions; strongly acid.

Regosols

The Eustis and Guin series are classified in the Regosols great soil group. The Regosols are an azonal group of soils that lack definite genetic horizons. They consist of deep, unconsolidated rock or of soft, rocky deposits. In this county the Regosols are steep. The Eustis and Guin soils lack clearly expressed characteristics, because of the resistance of the quartz sand to change.

These soils formed in Coastal Plains sediments and are on uplands and terraces. The Guin soils contain a large amount of gravel in some horizons, and the Eustis soils range from fine sand to loamy sand.

No chemical or mineralogical data are available for the Guin soils. The Eustis soils are strongly acid to very strongly acid. They have a low cation-exchange capacity, ranging from 2.6 milliequivalents per 100 grams of soil in the A1 horizon to as low as 0.25 milliequivalent per 100 grams of soil in the C horizon. The higher exchange capacity in the surface layer probably reflects the higher content of organic matter in the A horizon. The content of organic matter ranges from 1.33 percent in the A1 horizon to 0.25 percent in the C horizon.

The X-ray diffraction pattern of the silt fraction (2 to 50 microns in diameter) indicates the presence of a large amount of quartz throughout the profile. Illite also occurs throughout the profile, and vermiculite and kaolinite are present in trace amounts in some layers. In the clay fraction (less than 2 microns in diameter) vermiculite is the dominant mineral. The soil material contains kaolinite, and the content of kaolinite increases with increasing depth. Illite is present below a depth of 9 inches, and there is some montmorillonite in the fine clay fraction (less than 0.2 microns in diameter) (*2*).

Eustis Series

The Eustis series consists of somewhat excessively drained Regosols. These soils formed in coarse-textured sediments of the Gulf Coastal Plain.

The Eustis soils are associated with the Guin and Ruston soils. In this county they resemble the Guin soils. Their textures are similar, but the Guin soils have a large amount of gravel throughout their profile. In the soils of both series, the color of the upper part of the profile varies only slightly. The Eustis soils resemble the Ruston in color, but they lack the textural B horizon that is typical of those soils.

The Eustis soils are not used extensively for agriculture, but some of the acreage is in pasture. Because they are droughty, these soils are limited in use for cultivated crops.

The following describes a profile of Eustis loamy sand, 2 to 5 percent slopes:

A1—0 to 2 inches, very dark grayish-brown (10YR 3/2, moist) or brown (10YR 5/3, dry) loamy sand; single grain; loose when moist; many fine roots; abrupt, smooth boundary; very strongly acid.

AC—2 to 8 inches, dark-brown (7.5YR 4/4, moist) or brown (10YR 5/4, dry) loamy sand; single grain; loose when moist; many roots; clear, smooth boundary; very strongly acid.

C1—8 to 18 inches, reddish-brown (5YR 4/4, moist) or yellowish-brown (10YR 5/4, dry) loamy fine sand; single grain; loose when moist; many fine roots; gradual, smooth boundary; strongly acid.

C2—18 to 55 inches, strong-brown (7.5YR 5/6 to 7.5YR 5/8, moist) or pink (7.5YR 7/4 to 7.5YR 8/4, dry) loamy fine sand; single grain; loose when moist; many fine roots; clear, smooth boundary; very strongly acid.

C3—55 to 63 inches, reddish-yellow (7.5YR 6/6 to 7.5YR 6/8, moist) or pink (7.5YR 7/4, dry) loamy fine sand; single grain; loose when moist; a few fine roots; gradual, smooth boundary; strongly acid.

C4—63 to 72 inches +, pink (5YR 8/4, moist) or very pale brown (10YR 8/3, dry) sand; single grain; loose when moist; strongly acid.

Guin Series

The Guin series consists of excessively drained to somewhat excessively drained, gravelly soils of the Regosol great soil group. These soils formed in thick beds of unconsolidated acid gravelly loamy sand and sandy loam.

The Guin soils occur with the Saffell, Eustis, and Ruston soils in areas that are gently sloping to steep.

They are more sandy than the Saffell soils, and they lack a B horizon. The Guin soils have a much higher content of gravel than the Eustis or Ruston soils.

The following describes a profile of Guin gravelly sandy loam, 2 to 8 percent slopes (sec. 2, T. 9 N., R. 15 W.):

A1—0 to 4 inches, very dark grayish-brown (10YR 4/2) gravelly sandy loam; single grain; friable when moist; contains scattered pebbles ⅛ to ½ inch in diameter; clear, smooth boundary; strongly acid.

C1—4 to 30 inches, yellowish-brown (10YR 5/4) gravelly fine sandy loam; structureless; friable when moist; 50 to 60 percent, by volume, is gravel ½ to 1 inch in diameter; clear, wavy boundary; strongly acid.

C2—30 to 72 inches, gravel bed with yellowish-red (5YR 4/6), friable soil material in the interstices.

Additional Facts About the County

This section is written primarily for those not familiar with the county. It discusses the water supply and the climate of the county. It also gives facts about the agriculture and describes the industries, cultural facilities, and transportation. The statistics used are mainly from records of the U.S. Bureau of the Census.

The people who settled this area came mainly from States to the east and north. In 1820, about a year after the county was organized, many settlers came into the area from North Carolina. Much of the present population

is made up of descendants of those early settlers. Collins, the largest town, is the county seat. Mount Olive and Seminary are two of the trade centers.

Water Supply

Water for domestic use is obtained from both shallow and deep wells. Water for livestock is taken from streams, springs, and farm ponds. The water from shallow wells is obtained from the basal beds of the Citronelle formation, which is at a depth of 50 to 100 feet (*4*). Water from the deeper wells is obtained from the Hattiesburg clay and Catahoula sandstone formations. Most of the towns and a few farms obtain their water supply from the deep wells.

A few wells have a static head strong enough for a natural flow. Most of these wells are located in the valleys of Okatoma, Bowie, and Oakohay Creeks and in the valley of Leaf River.

Climate

The climate of Covington County is humid. It is hot in summer and mild in winter. Freezes occur every winter, however, and the temperature falls as low as 20 degrees in 9 out of 10 winters. There appears to be a natural drainage of cold air southward in winter between the higher hills to the west and those to the southeast. The temperature is below 50 degrees for about 1,400 hours each winter.

About 52 days in winter have a temperature of 32 degrees or lower, and 105 days in summer have a temperature of 90 degrees or higher. The temperature is 90 degrees or higher for about 400 hours each summer. The average annual temperature is about 67 degrees. Table 11 gives facts about the temperature and precipitation in Covington County. The statistics are from records of the U.S. Weather Bureau at Collins.

The relative humidity is between 60 and 100 percent about 74 percent of the time and below 40 percent about 6 percent of the time. In winter, when the temperature is below 50 degrees, the relative humidity is between 50 and 79 percent about 50 percent of the hours and between 80 and 100 percent about 40 percent of the hours. In summer, when the temperature is 90 degrees or higher, the relative humidity never exceeds 79 percent, but it is between 50 and 79 percent for 48 percent of the hours.

Rain, the usual form of precipitation, generally falls as showers. Prolonged rains are rare, and they occur mainly in winter. The precipitation is fairly well distributed throughout the year, but rainfall is heaviest in spring. Rains in winter exceed those in summer by only a small amount. Fall is the driest season, which benefits harvesting, but this dryness makes the planting of winter grains somewhat hazardous.

Sleet and snow occur occasionally. The heaviest snow of 5 to 9 inches, was recorded on February 12, 1899.

Winds of gale force from tropical storms occur once in 14 years, but there is no record of a hurricane of full strength as far inland as this county. Tornadoes occur about once in 14 years; damaging hailstorms, about once in 20 years; and severe thunderstorms, about once in 6 years.

In table 12 are listed the possibilities of temperatures that are damaging to crops after a given date in spring and before a given date in fall. Frost sometimes forms on vegetation under a clear sky and in calm air at night, when the temperature, registered on a thermometer that is 5 feet above the ground and in a shelter, is above 32

TABLE 11.—*Temperature and precipitation*

[Precipitation data are for 30 years at Collins, Miss. Temperature data are for 10 years at Collins and are adjusted to 30 years by comparison with Columbia, Miss.]

Month	Temperature				Precipitation				
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with—		Average monthly total	One year in 10 will have—		Days that have a snow cover of 1.0 inch or more	Average depth of snow on days that have a snow cover
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—		
	°F.	°F.	°F.	°F.	*Inches*	*Inches*	*Inches*		
January	62.6	37.6	76	20	4.89	2.40	7.61	(1)	2
February	64.9	40.3	79	22	4.95	2.45	7.61	(1)	1
March	71.2	44.0	84	26	5.82	2.85	9.20	0	0
April	79.2	50.8	88	36	5.06	2.35	7.80	0	0
May	85.9	59.9	95	45	4.72	2.39	6.80	0	0
June	91.7	66.5	96	54	4.07	1.53	6.25	0	0
July	92.9	69.1	98	65	6.12	2.63	12.36	0	0
August	93.6	67.6	98	61	4.00	1.75	6.59	0	0
September	89.5	63.1	97	50	3.79	1.00	6.55	0	0
October	81.0	51.2	92	31	2.50	.53	5.67	0	0
November	69.9	41.1	83	22	3.52	.90	7.25	0	0
December	63.8	37.2	80	21	5.10	2.70	8.63	0	0
Year	78.9	52.4	[2]100	[3]16	54.54	46.67	66.03	(1)	2

[1] Less than 0.5 day.
[2] Average annual highest maximum.
[3] Average annual lowest minimum.

TABLE 12.—*Probabilities of last freezing temperatures in spring and first in fall*

[Based on 10 years of records at Collins, Miss., and adjusted to 30 years by comparison with data from Columbia, Miss. These data have also been adjusted to account for years without a temperature as low as the indicated threshold]

Probability	Dates for given probability and temperature				
	24° F. or lower	28° F. or lower	32° F. or lower	36° F. or lower	40° F. or lower
Spring:					
1 year in 10, later than	March 12	March 29	April 15	April 29	May 9.
2 years in 10, later than	March 5	March 22	April 8	April 22	May 2.
5 years in 10, later than	February 19	March 8	March 25	April 8	April 18.
Fall:					
1 year in 10, earlier than	November 4	October 10	October 17	October 8	September 29.
2 years in 10, earlier than	November 12	November 3	October 25	October 16	October 7.
5 years in 10, earlier than	November 23	November 14	November 5	October 27	October 18.

degrees. For this reason and because a low temperature can adversely affect plants and the seeds in seedbeds, even though it is above freezing, the probabilities of temperatures of 36 degrees and 40 degrees are included in this table.

Industries

This county has few industries. Timber and timber products provided the main sources of income during the late 1800's and early 1900's, and lumbering is still the most important industry. In the early part of the century, however, most of the virgin timber was exhausted and several of the large sawmills were closed. Several smaller sawmills are still operated, and wood products are still a major source of income. The wood products include lumber, pulpwood, poles, sawtimber, and veneer.

Two producing oil wells were completed in 1962. Other industries include a plant where prefabricated houses are manufactured and distributed, a garment factory, and a plant where poultry is processed. There are also several mills where grain is crushed and mixed as feed for cattle and poultry.

Transportation and Cultural Facilities

A railroad passes through Collins, Mount Olive, and Seminary. In addition, two Federal highways cross the county from west to east, and six State highways serve the county. Many of the other roads are paved, and still other roads have an all-weather, graveled surface.

In recent years schools have improved in this county. Six high schools are located at strategic points. Churches are scattered throughout the county.

Agriculture

In 1959 approximately two-thirds of Covington County, or 177,281 acres, was in farms. The total acreage in farms has been fairly constant since 1930. The average size of farms increased from 71.1 acres in 1930 to 105.7 acres in 1959.

In 1959 there were 1,678 farms in the county. Of these, 341 were cotton farms, 95 were general farms, 21 were poultry farms, 10 were dairy farms, and 198 were farms where livestock other than dairy cattle and poultry were raised. The rest were miscellaneous and unclassified. In recent years the trend has been away from cotton farming. Diversified farms, farms where row crops are the main source of income, and cattle farms have become more numerous. The cotton acreage dropped from 35,496 acres in 1929 to 7,660 acres in 1959. During the same period, the number of cattle increased from 5,742 to 21,521. Since 1930 poultry and poultry products have become an important source of income. In 1959 a total of 990,734 chickens, including broilers, was sold.

Machinery has replaced the work animals on many farms. The number of horses and mules decreased from 3,590 in 1930 to 1,403 in 1959. The number of tractors increased from 30 to 701 during the same period.

A total of 1,236 farmers owned their farms in 1959, and 227 farmers were part owners. The rest of the farms were operated by tenants. Only 12.6 percent of the farms was operated by tenants in 1959, as compared to 42.5 percent in 1940.

Electric power is available on most farms. In 1959 telephones were reported on 607 farms.

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1953. THE UNIFIED SOIL CLASSIFICATION SYSTEM. Tech. Memo. No. 3-357, 3 v.

Glossary

Acidity, soil. The degree of acidity or alkalinity of the soil mass, expressed in pH values, or in words, as follows:

	pH		*pH*
Extremely acid	Below 4.5	Mildly alkaline	7.4–7.8
Very strongly acid	4.5–5.0	Moderate alkaline	7.9–8.4
Strongly acid	5.1–5.5	Strongly alkaline	8.5–9.0
Medium acid	5.6–6.0	Very strongly alkaline	9.1 and higher
Slightly acid	6.1–6.5		
Neutral	6.6–7.3		

Aggregate, soil. Many fine particles held in a single mass or cluster, such as a clod, prism, crumb, or granule.

Alluvium. Soil material, such as sand, silt, or clay, deposited on land by streams.

Clay. As a soil separate, a mineral particle that is less than 0.002 millimeter in diameter. As a 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.

Complex, soil. A mapping unit consisting of different kinds of soils that occur in such small individual areas or in such an intricate pattern that they cannot be shown separately on a publishable soil map.

Concretion. A hardened local concentration of chemical compounds, such as calcium carbonates or compounds of magnesium or iron, that form indurated grains or nodules of mixed composition and of various sizes, shapes, and colors.

Consistence, soil. The attributes of soil material that are expressed by the degree and kind of cohesion and adhesion or by the resistance to deformation or rupture. Terms commonly used to describe consistence are *brittle, compact, firm, friable, impervious, sticky, plastic,* and *cemented.* Several terms may be used to describe the consistence of a soil at different degrees of moisture content. For example, "very plastic, very firm, very hard" means very plastic when wet, very firm when moist, and very hard when dry.

Brittle. When dry will break with a sharp, clean fracture, or if struck a sharp blow, will shatter into cleanly broken, hard fragments.

Compact. Dense and firm but not cemented.

Firm. Crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Friable. Crushes easily under gentle to moderate pressure between thumb and forefinger and coheres when pressed together.

Impervious. Very resistant to penetration by water, air, and roots.

Sticky. Tends to adhere to other material when wet.

Plastic. Will form a wire; moderate pressure required for deformation of the soil mass.

Cemented. Brittle and hard because of some cementing substance other than clay minerals, such as calcium carbonates, silica, or oxides, or salts of iron and aluminum.

Contour tillage. Furrows plowed at right angles to the direction of slope, at the same level throughout, and ordinarily close together.

Fragipan. A very compact horizon, rich in silt, sand, or both, and usually relatively low in clay. The fragipan commonly interferes with the penetration of water and roots.

Gley soil. A soil in which waterlogging and lack of oxygen have caused the material in one or more horizons to be neutral gray. The term "gleyed" is applied to a soil horizon that has yellow and gray mottling caused by intermittent waterlogging.

Green-manure crop. Any crop grown and plowed under to improve the soil.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. The relative position of the several soil horizons in a typical soil profile, and their nomenclature, are as follows:

A0 Organic debris, partly decomposed or matted.
A1 A dark-colored horizon having a fairly high content of organic matter mixed with mineral matter.
A2 A light-colored horizon, often representing the zone of maximum leaching where podzolized; absent in wet, dark-colored soils.
A3 Transitional to B horizon but more like the A than the B; absent in some places.
Ap A plowed or otherwise mixed surface layer that includes more than the original A1 horizon.
B1 Transitional to B horizon but more like the B than the A; absent in some places.
B2 Generally a darker colored horizon, which often represents the zone of maximum illuviation where podzolized.
B3 Transitional to C horizon.
C Slightly weathered parent material; absent in some soils.
g A gleyed horizon, as B2g.

The A horizons make up a zone of eluviation, which is a leached zone. The B horizons make up a zone of illuviation, in which clay and other materials have accumulated. The A and B horizons, together, are called the solum, or true soil.

Internal drainage, soil. The downward flow of water through the profile. The rate of movement is determined by the texture and structure of the soil, by other characteristics of the soil and underlying layers, and by the height of the water table, either permanent or perched. Relative terms for expressing internal drainage are *very rapid, rapid, medium, slow, very slow,* and *none.*

Leaching, soil. The removal of material in solution by the passage of water through the soil.

Morphology, soil. The physical constitution of a soil, including the texture, structure, porosity, consistence, color, and other physical, chemical, and biological properties of the various horizons that make up the soil profile.

Mottles. Irregular spots of different colors. Mottling is indicated by descriptive words in a definite sequence; for example "common, fine, distinct, yellowish-brown mottles." The word "common" indicates the number of mottles; the word "fine," the size of the mottles; and the word "distinct," the degree to which the mottles contrast with the base color of the soil.

Parent material. The unconsolidated mass from which the soil profile develops.

Permeability, soil. That quality of the soil that enables it to transmit water or air through the profile.

Porosity, soil. The degree to which the soil mass is permeated with pores or cavities.

Pore space. The fraction of the bulk volume, or total space within a soil, that is not occupied by solid particles.

Relief. The elevations or inequalities of the land surface, considered collectively.

Sand. Small fragments of rock or minerals ranging from 0.05 millimeter to 2.0 millimeters in diameter; coarse sand, 1.0 to 0.5 millimeter; sand, 0.5 to 0.25 millimeter; fine sand, 0.25 to 0.1 millimeter; very fine sand, 0.1 to 0.05 millimeter. As a textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Silt. Small grains of mineral soil ranging from 0.05 to 0.002 millimeter in diameter. As a textural class, a soil that is 80 percent or more silt and less than 12 percent clay.

Solum. The upper part of the soil profile, above the parent material, in which the processes of soil formation are taking place. In a mature soil the solum includes the A and B horizons; the character of the material may be, and usually is, unlike that of the parent material.

Structure, soil. The morphological aggregates in which the individual soil particles are arranged. The most common types of structure are the following:

Subangular blocky. Having mixed rounded or plane faces, with vertices mostly rounded.

Granular. Hard or soft, but firm, small aggregates, angular or rounded, as in the A horizon of many Chernozems.

Crumb. Generally soft, small, porous aggregates, irregular in shape, as in the A1 horizon of many soils.

To indicate a lack of definite structure, the following terms are normally used:

Single grain (structureless). Each grain is by itself, as in dune sand.

Massive (structureless). Large uniform masses of cohesive soil material that have irregular cleavage, as in the C horizon of many clayey soils.

Subsoil. Roughly, that part of the solum below plow depth.

Surface soil. The upper part of an arable soil commonly stirred by tillage implements, or an equivalent depth in a nonarable soil.

Texture, soil. The relative proportion of the various size groups of individual soil grains. See also Clay, Sand, and Silt.

GUIDE TO MAPPING UNITS

[See table 1, p. 5, for the acreage and proportionate extent of the soils, and table 2, p. 34, for the estimated yields. To find the engineering properties of the soils, see the section beginning on p. 51, and for facts about wildlife see the section beginning on p. 49. Dashes show that a particular soil was not placed in a specified group, because it is not suited to such use]

Map symbol	Mapping unit	Page	Capability unit		Woodland suitability group		Woodland range site	
			Symbol	Page	Number	Page	Name	Page
Bb	Bibb and Waverly soils	4	IVw–1	30	3	43	Alluvial Land.	48
BoB	Boswell silt loam, 2 to 5 percent slopes	4	IIIe–3	28	1	41	Coastal Plain Hills (Level to Gently Undulating).	47
BoC	Boswell silt loam, 5 to 8 percent slopes	5	IVe–3	30	1	41	Coastal Plain Hills (Level to Gently Undulating).	47
BoC2	Boswell silt loam, 5 to 8 percent slopes, eroded.	5	IVe–3	30	1	41	Coastal Plain Hills (Level to Gently Undulating).	47
BoD	Boswell silt loam, 8 to 17 percent slopes	6	VIIe–2	33	1	41	Coastal Plain Hills (Steep).	48
BrD	Boswell, Cuthbert, and Savannah soils, 8 to 17 percent slopes.	6	VIIe–2	33	1	41	Coastal Plain Hills (Steep).	48
BsC	Boswell and Savannah soils, 2 to 8 percent slopes.	6	IIIe–3	28	1	41	Coastal Plain Hills (Level to Gently Undulating).	47
BuA	Bude silt loam, 0 to 2 percent slopes	6	IIIw–1	29	7	45	Loess Hills.	49
BuB	Bude silt loam, 2 to 5 percent slopes	7	IIIw–1	29	7	45	Loess Hills.	49
BuB2	Bude silt loam, 2 to 5 percent slopes, eroded.	7	IIIw–1	29	7	45	Loess Hills.	49
CaA	Cahaba fine sandy loam, 0 to 2 percent slopes.	7	I–1	25	4	44	Coastal Plain Hills (Level to Gently Undulating).	47
CaB	Cahaba fine sandy loam, 2 to 5 percent slopes.	7	IIe–1	25	4	44	Coastal Plain Hills (Level to Gently Undulating).	47
Co	Collins and Iuka soils	8	IIw–1	26	8	46	Alluvial Land.	48
Cu	Collins and Iuka soils, local alluvium	8	IIw–1	26	8	46	Alluvial Land.	48
EsB	Eustis loamy sand, 2 to 5 percent slopes	8	IIIs–1	29	6	44	Coastal Plain Hills (Sandy and Gravelly).	48
EsC	Eustis loamy sand, 5 to 8 percent slopes	8	IVs–1	31	6	44	Coastal Plain Hills (Sandy and Gravelly).	48
EsD	Eustis loamy sand, 8 to 12 percent slopes	9	VIs–1	32	6	44	Coastal Plain Hills (Sandy and Gravelly).	48
EsF	Eustis loamy sand, 12 to 40 percent slopes	9	VIIs–1	33	6	44	Coastal Plain Hills (Sandy and Gravelly).	48
EtA	Eustis loamy sand, terrace, 0 to 2 percent slopes.	9	IIIs–1	29	6	44	Coastal Plain Hills (Sandy and Gravelly).	48
EuF	Eustis and Ruston soils, 12 to 40 percent slopes.	9	VIIs–1	33	6	44	Coastal Plain Hills (Sandy and Gravelly).	48
FaA	Falkner silt loam, 0 to 2 percent slopes	10	IIIw–1	29	1	41	Loess Hills.	49
FaB	Falkner silt loam, 2 to 5 percent slopes	10	IIIw–1	29	1	41	Loess Hills.	49
GgD	Guin gravelly sandy loam, 8 to 12 percent slopes.	10	VIs–2	32	6	44	Coastal Plain Hills (Sandy and Gravelly).	48
GgF	Guin gravelly sandy loam, 12 to 40 percent slopes.	10	VIIs–2	33	6	44	Coastal Plain Hills (Sandy and Gravelly).	48
GsC	Guin and Saffell gravelly sandy loams, 2 to 8 percent slopes.	10	IVs–2	31	6	44	Coastal Plain Hills (Sandy and Gravelly).	48
Gu	Gullied land	11	VIIe–3	33	9	46		
Hn	Henry silt loam	11	IVw–2	31	5	44	Loess Hills.	49
IzA	Izagora fine sandy loam, 0 to 2 percent slopes.	11	IIw–2	27	1	41	Coastal Plain Hills (Level to Gently Undulating).	47
Lf	Leaf silt loam	12	IVw–2	31	5	44	Coastal Plain Hills (Wetlands).	49
Mf	Mantachie and Falaya soils	12	IIw–3	27	11	46	Alluvial Land.	48
My	Myatt silt loam	13	IVw–2	31	5	44	Coastal Plain Hills (Wetlands).	49
Oc	Ochlockonee fine sandy loam	13	IIw–1	26	8	46	Alluvial Land.	48
Oh	Ochlockonee soils, local alluvium	13	IIw–1	26	8	46	Alluvial Land.	48
Om	Ochlockonee, Mantachie, and Iuka soils	13	Vw–1	31	8	46	Alluvial Land.	48
OrA	Ora fine sandy loam, 0 to 2 percent slopes	14	IIw–2	27	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
OrB	Ora fine sandy loam, 2 to 5 percent slopes	14	IIe–2	26	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
OrB2	Ora fine sandy loam, 2 to 5 percent slopes, eroded.	14	IIe–2	26	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
OrC	Ora fine sandy loam, 5 to 8 percent slopes	14	IIIe–2	28	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
OrC2	Ora fine sandy loam, 5 to 8 percent slopes, eroded.	14	IIIe–2	28	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
OrC3	Ora fine sandy loam, 5 to 8 percent slopes, severely eroded.	14	IVe–2	30	2	42	Coastal Plain Hills (Steep).	48
OrD	Ora fine sandy loam, 8 to 12 percent slopes	14	IVe–2	30	2	42	Coastal Plain Hills (Steep).	48
OrD2	Ora fine sandy loam, 8 to 12 percent slopes, eroded.	15	IVe–2	30	2	42	Coastal Plain Hills (Steep).	48

GUIDE TO MAPPING UNITS—Continued

[See table 1, p. 5, for the acreage and proportionate extent of the soils, and table 2, p. 34, for the estimated yields. To find the engineering properties of the soils, see the section beginning on p. 51, and for facts about wildlife see the section beginning on p. 49. Dashes show that a particular soil was not placed in a specified group, because it is not suited to such use]

Map symbol	Mapping unit	Page	Capability unit		Woodland suitability group		Woodland range site	
			Symbol	Page	Number	Page	Name	Page
OsB	Ora silt loam, heavy substratum, 2 to 5 percent slopes.	15	IIe–2	26	2	42	Coastal Plain Hills (Level to Gengly Undulating).	47
OsB2	Ora silt loam, heavy substratum, 2 to 5 percent slopes, eroded.	15	IIe–2	26	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
OsC2	Ora silt loam, heavy substratum, 5 to 8 percent slopes, eroded.	15	IIIe–2	28	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
PhA	Pheba loam, 0 to 2 percent slopes	15	IIIw–1	29	7	45	Coastal Plain Hills (Wetlands).	49
PhB	Pheba loam, 2 to 5 percent slopes	15	IIIw–1	29	7	45	Coastal Plain Hills (Wetlands).	49
PnA	Prentiss fine sandy loam, 0 to 2 percent slopes.	16	IIw–2	27	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
PnB	Prentiss fine sandy loam, 2 to 5 percent slopes.	16	IIe–2	26	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
PrA	Providence silt loam, 0 to 2 percent slopes	16	IIw–2	27	2	42	Loess Hills.	49
PrB	Providence silt loam, 2 to 5 percent slopes	16	IIe–2	26	2	42	Loess Hills.	49
PrB2	Providence silt loam, 2 to 5 percent slopes, eroded.	16	IIe–2	26	2	42	Loess Hills.	49
PrC	Providence silt loam, 5 to 8 percent slopes	17	IIIe–2	28	2	42	Loess Hills.	49
RsA	Ruston fine sandy loam, 0 to 2 percent slopes	17	I–1	25	4	44	Coastal Plain Hills (Level to Gently Undulating).	47
RsB	Ruston fine sandy loam, 2 to 5 percent slopes	17	IIe–1	25	4	44	Coastal Plain Hills (Level to Gently Undulating).	47
RsB2	Ruston fine sandy loam, 2 to 5 percent slopes, eroded.	17	IIe–1	25	4	44	Coastal Plain Hills (Level to Gently Undulating).	47
RsC	Ruston fine sandy loam, 5 to 8 percent slopes.	17	IIIe–1	27	4	44	Coastal Plain Hills (Level to Gently Undulating).	47
RsC2	Ruston fine sandy loam, 5 to 8 percent slopes, eroded.	18	IIIe–1	27	4	44	Coastal Plain Hills (Level to Gently Undulating).	47
RsC3	Ruston fine sandy loam, 5 to 8 percent slopes, severely eroded.	18	IVe–1	30	4	44	Coastal Plain Hills (Steep).	48
RsD	Ruston fine sandy loam, 8 to 12 percent slopes.	18	IVe–1	30	4	44	Coastal Plain Hills (Steep).	48
RsD2	Ruston fine sandy loam, 8 to 12 percent slopes, eroded.	18	IVe–1	30	4	44	Coastal Plain Hills (Steep).	48
RsD3	Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded.	18	VIe–1	32	4	44	Coastal Plain Hills (Steep).	48
RsE	Ruston fine sandy loam, 12 to 17 percent slopes.	18	VIe–1	32	4	44	Coastal Plain Hills (Steep).	48
RsE2	Ruston fine sandy loam, 12 to 17 percent slopes, eroded.	18	VIe–1	32	4	44	Coastal Plain Hills (Steep).	48
RsE3	Ruston fine sandy loam, 12 to 17 percent slopes, severely eroded.	19	VIIe–1	32	4	44	Coastal Plain Hills (Steep).	48
RsF	Ruston fine sandy loam, 17 to 40 percent slopes.	19	VIIe–1	32	4	44	Coastal Plain Hills (Steep).	48
RsF2	Ruston fine sandy, loam, 17 to 40 percent slopes, eroded.	19	VIIe–1	32	4	44	Coastal Plain Hills (Steep).	48
RsF3	Ruston fine sandy loam, 17 to 40 percent slopes, severely eroded.	19	VIIe–1	32	4	44	Coastal Plain Hills (Steep).	48
RuC	Ruston, Ora, and Cuthbert soils, 5 to 12 percent slopes.	19	IVe–1	30	4	44	Coastal Plain Hills (Steep).	48
SbA	Savannah loam, 0 to 2 percent slopes	19	IIw–2	27	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
SbB	Savannah loam, 2 to 5 percent slopes	20	IIe–2	26	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
SbB2	Savannah loam, 2 to 5 percent slopes, eroded.	20	IIe–2	26	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
SbC	Savannah loam, 5 to 8 percent slopes	20	IIIe–2	28	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
SbC2	Savannah loam, 5 to 8 percent slopes, eroded.	20	IIIe–2	28	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
StA	Stough fine sandy loam, 0 to 2 percent slopes.	20	IIIw–1	29	7	45	Coastal Plain Hills (Wetlands).	49
StB	Stough fine sandy loam, 2 to 5 percent slopes.	20	IIIw–1	29	7	45	Coastal Plain Hills (Wetlands).	49
SuB	Susquehanna soils, 2 to 5 percent slopes	21	IVe–3	30	1	41	Coastal Plain Hills (Wetlands).	49

GUIDE TO MAPPING UNITS—Continued

[See table 1, p. 5, for the acreage and proportionate extent of the soils, and table 2, p. 34, for the estimated yields. To find the engineering properties of the soils, see the section beginning on p. 51, and for facts about wildlife see the section beginning on p. 49. Dashes show that a particular soil was not placed in a specified group, because it is not suited to such use]

Map symbol	Mapping unit	Page	Capability unit		Woodland suitability group		Woodland range site	
			Symbol	Page	Number	Page	Name	Page
SuC	Susquehanna soils, 5 to 8 percent slopes	21	VIe–2	32	1	41	Coastal Plain Hills (Wetlands) and Coastal Plains Hills (Level to Gently Undulating).	49, 47
SuD	Susquehanna soils, 8 to 17 percent slopes	21	VIIe–2	33	1	41	Coastal Plain Hills (Steep).	48
Sw	Swamp	21	VIIw–1	33	10	46	Alluvial Land.	48
TdA	Tilden fine sandy loam, 0 to 2 percent slopes.	21	IIw–2	27	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
TdB	Tilden fine sandy loam, 2 to 5 percent slopes.	22	IIe–2	26	2	42	Coastal Plain Hills (Level to Gently Undulating).	47
Vc	Vicksburg silt loam	22	IIw–1	26	8	46	Alluvial Land.	48

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