SOIL SURVEY OF

Lowndes County, Georgia

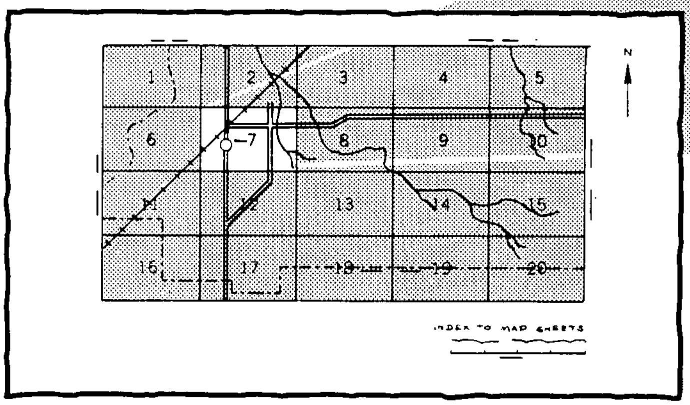
United States Department of Agriculture
Soil Conservation Service

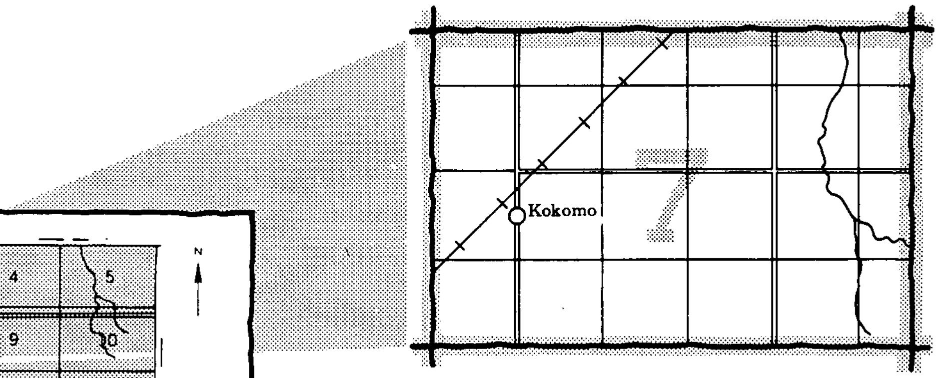
In cooperation with

The University of Georgia
College of Agriculture
Agricultural Experiment Stations

HOW TO USE

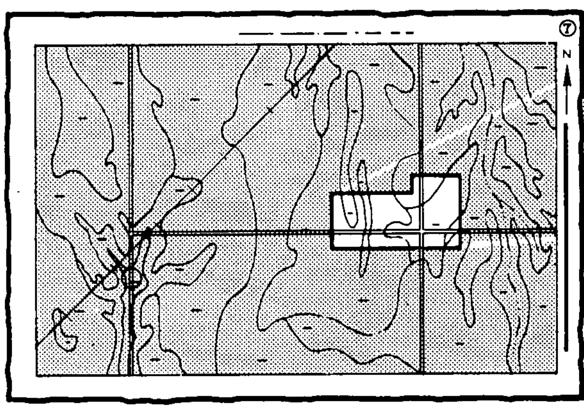
1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).

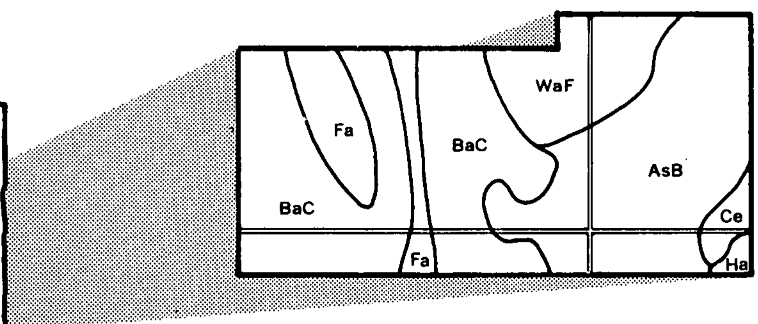




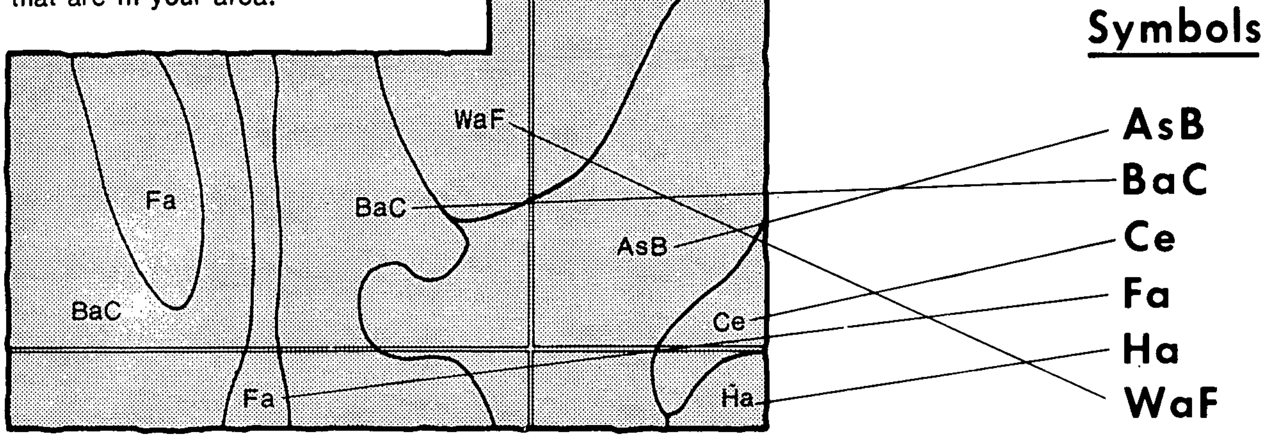
2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.



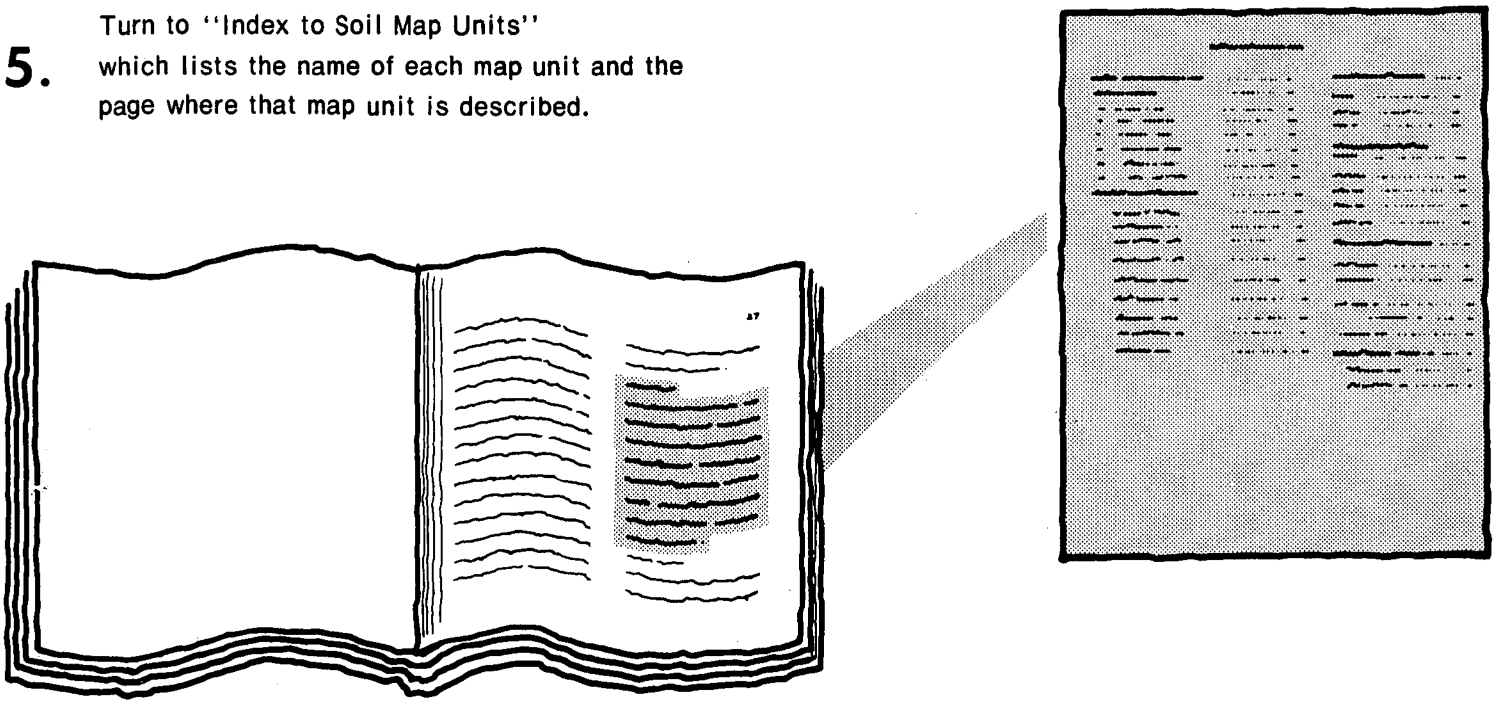


4. List the map unit symbols that are in your area.

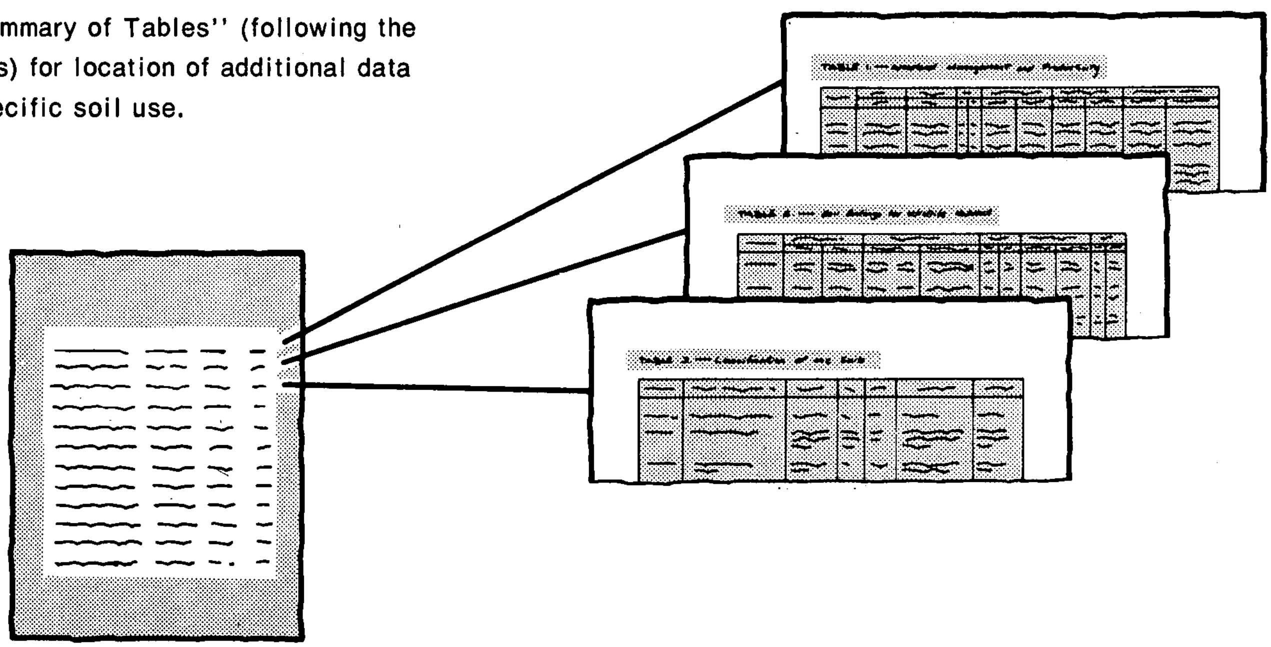


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in the period 1970-74. Soil names and descriptions were approved in 1975. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1975. This survey was made cooperatively by the United States Department of Agriculture, Soil Conservation Service, and the University of Georgia, College of Agriculture, Agricultural Experiment Station. It is part of the technical assistance furnished to the Alapaha Soil and Water Conservation District.

Soil maps in this survey may be copied without permission, but any enlargement of these maps can cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

Cover: The live oak, the Georgia State tree, dots much of the landscape of Lowndes County. The soil is Valdosta sand, 0 to 5 percent slopes.

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Issued August 1979

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Foreword

The Soil Survey of Lowndes County contains much information useful in any land-planning program. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

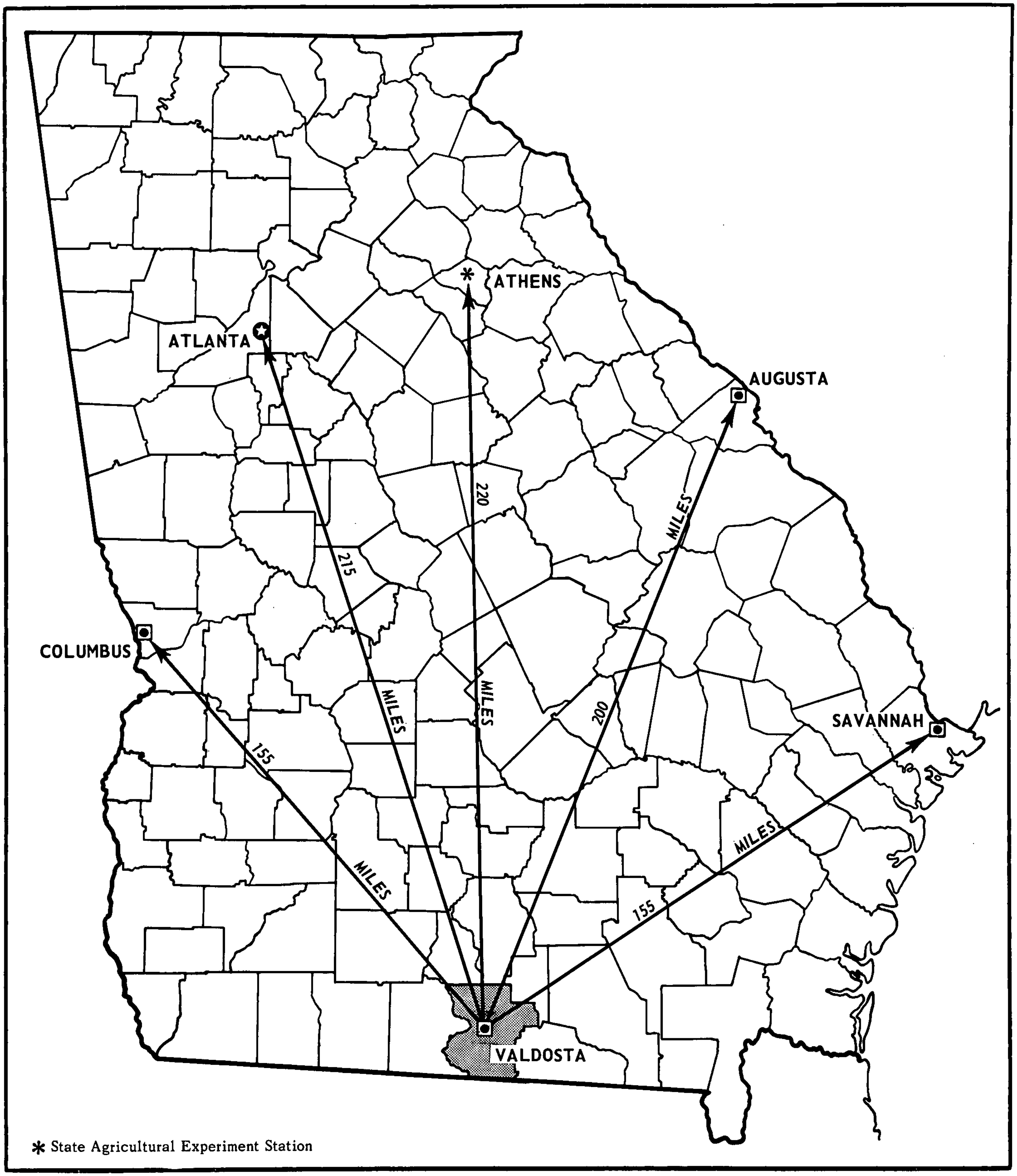
This soil survey has been prepared for many different users. Farmers, ranchers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and homebuyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed to assure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

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

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map; the location of each kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

This soil survey can be useful in the conservation, development, and productive use of soil, water, and other resources.

Dwight M. Treadway
State Conservationist
Soil Conservation Service



Location of Lowndes County in Georgia.

SOIL SURVEY OF LOWNDES COUNTY, GEORGIA

By Joe G. Stevens, Soil Conservation Service

Fieldwork by Joe G. Stevens and Richard Gilbert, Soil Conservation Service

United States Department Of Agriculture, Soil Conservation Service, in cooperation with the University of Georgia, College of Agriculture, Agricultural Experiment Stations

LOWNDES COUNTY is in the extreme southern part of Georgia. (See facing page.) Valdosta is the county seat. In 1975 the population of Valdosta was about 38,000, and the population of Lowndes County was nearly 60,000. The county has a total area of 324,800 acres, or about 508 square miles.

The county is in the Coastal Terrace region of the State. The Little River and the Withlacoochee River form the western boundary. The Alapaha River (fig. 1) and Grand Bay Creek, together with Echols County, form the eastern boundary. Lowndes County is bounded on the north by Cook and Berrien Counties and on the south by Florida.

General nature of the county

In this section, general information about the county is given. Climate; geology; physiography, relief, and drainage; water supplies; history and population; and farming are described.

Climate

Lowndes County has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short, with only a rare cold wave that moderates in 1 or 2 days. Precipitation is fairly heavy throughout most of the year. Prolonged droughts are rare. Summer precipitation, mainly afternoon thundershowers, is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area, as recorded at Quitman, Georgia, for the period 1951-74. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 52 degrees F, and the average daily minimum is 39 degrees. The lowest temperature on record, 6 degrees, occurred at Quitman on December 14, 1962. In summer the average temperature is 80 degrees, and the average daily maximum is 92 degrees. The highest temperature, 106 degrees, was recorded on June 27, 1952.

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

Of the total annual precipitation, 31 inches, or 60 percent, usually falls during the period April through September, which includes the growing season for most crops. Two years in ten, the April-September rainfall is less than 26 inches. The heaviest 1-day rainfall during the period of record was 5.37 inches at Quitman on May 3, 1964. Thunderstorms number about 70 each year, 45 of which occur in summer.

Snowfall is rare. In 96 percent of the winters, there is no measurable snowfall. The heaviest snowfall ever observed in 1 day was 3 inches.

The average relative humidity in midafternoon in spring is less than 50 percent; during the rest of the year it is about 55 percent. Humidity is higher at night in all seasons, and the average at dawn is about 90 percent. The percentage of possible sunshine is 60 percent in summer and 50 percent in winter. The prevailing winds are northerly. Average windspeed is highest, 9 miles per hour, in March.

Severe local storms, including tornadoes, strike occasionally in or near the county. They are short and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane which has moved inland causes extremely heavy rains for 1 to 3 days.

Geology

WILLIAM R. FULMER, geologist, Soil Conservation Service, prepared the information for this section.

Lowndes County is in the Coastal Terrace region of the State. The area has undergone geologic processes typical of the lower Coastal Plain of Georgia. The soils on uplands formed in deep sedimentary sands and clays. Alluvial soils near the streams and tributaries formed from material eroded from the uplands.

Most of the geology in the southern and western areas of the county are part of the Hawthorn Formation of middle Miocene age. In the central and northeastern parts, the Hawthorn Formation is overlain by a somewhat distinct terrace of Pliocene age (*5*). This terrace is referred to as High Terrace and is 150 feet above mean sea level.

The Okefenokee shoreline is the highest recognized Pleistocene shoreline; it is 150 feet above mean sea level. It extends into the county along the Withlacoochee River and Grand Bay Creek. This shoreline defines the limits of the Okefenokee Sea and represents the interglacial stage prior to the formation of the Okefenokee Swamp in Charlton and Clinch Counties.

Karst topography dominates the landscape over much of the county, especially the south-central part. Circular depressions, the result of ground water solution of the underlying limestone, can be easily identified (fig. 2). These depressions, or lime sinks, vary greatly in size and depth. They are partially filled with alluvium from the surrounding uplands. Some contain an extensive accumulation of peat. They are commonly inundated throughout the year.

Sediments from the Pliocene period to the present range from 20 to 90 feet in thickness. These sediments have a shallow surface increment of fine sand to coarse sand overlying sandy clay. The sandy clay is limonitic and mottled and contains finely disseminated phosphate grains.

Typically, the Hawthorn Formation of middle Miocene age averages 150 feet in thickness, is phosphatic, and is pale green to dark green. It is sandy clay interbedded with fine sand to coarse grained sand and sandy limestone.

The underlying Tampa Formation of early Miocene age is limestone. The formation crops out in lime sinks in the lower southeastern part of the county and along the Withlacoochee River on the county's western boundary. The limestone is white or cream colored, sandy, phosphatic, locally cherty, and slightly fossiliferous.

The general soil map at the back of this survey shows the soil association in Lowndes County. Concentrations of phosphates in soil association 7 have an economic potential that is not fully known. In addition, sand from soil associations 7, 8, and 9 is used locally in construction. Organic material, commonly referred to as peat moss, from soil association 3 is used as a soil conditioner.

Physiography, relief, and drainage

The soils in Lowndes County are mostly nearly level to gently sloping. They are on uplands dissected by small streams. These streams become more sluggish as the topography becomes more nearly level in the east and southeast. In the northern and west-central parts of the county, the soils on uplands are well drained and the soils in drainageways are mostly poorly drained. Excessively drained sandy soils are on the east sides of the major streams. In the southern part of the county are many natural lakes ranging from a few acres to 800 acres in size. This area is referred to locally as the "lake country." The soils in this area are well drained or excessively drained and formed from sands underlain by phosphatic limestone. In the eastern part of the county are poorly drained or very poorly drained soils on low flats and in drainageways. Numerous large and small cypress ponds or bays dot the landscape. This area is referred to locally as the "flatwoods."

Lowndes County is in the Suwanee River Watershed. The principal streams drain into the Suwanee River, which in turn drains into the Gulf of Mexico. Many small intermittent streams flow towards the south and form the drainage system for the county.

Water supplies

The water needs for Lowndes County are supplied by streams, by shallow wells drilled into water-bearing sand, and by deep artesian wells drilled into the underlying limestone. There are many streams in the county, but most of them flow only in wet seasons. The Alapaha, Little, and Withlacoochee Rivers are large, and they flow throughout the year. These rivers rise rapidly during periods of excessive rainfall and flood large areas. There are many large natural lakes in the southern part of the county and hundreds of cypress ponds that hold water for several months each year. Many farm ponds and lime sinks hold water the entire year.

Shallow wells are commonly 30 to 60 feet deep; they yield sufficient water for home use except during extreme droughts. Deep wells range from 120 to 150 feet in depth in the southern part of the county, and from 260 to 280 feet in depth in the northern part. These deep wells provide abundant water for most towns in the county. In addition, large quantities of water from these wells are available for industrial use.

History and population

Parts of this section were taken from "History of Lowndes County to 1900" (*6*).

In 1825, Governor George Troup signed an act creating Lowndes County from the original Irwin County. The first county seat was Franklinville, a few miles east of present day Hahira. Franklinville consisted of a courthouse, a jail, and two or three stores. The second county seat was Troupville. It was just north of the confluence of the Little and Withlacoochee Rivers. Troupville was in the center of the county. It was a thriving community with general stores, mechanics' shops, and lawyers' offices. When the Atlantic and Gulf Railroad extended its right-of-way 4 miles southeast of Troupville, the county seat was moved to the newly created city of Valdosta. The citizens did not want to name the new town Troupville and take away some of the sentiment attached to the first settlement they established. Instead they chose to honor former Governor Troup by using a form of the name of his estate ValdeAosta. Thus, Valdosta was incorporated on December 7, 1860.

The early settlers came from the coast; later settlers came mainly from northern Georgia or from nearby counties. Lowndes County was named for William Jones Lowndes, a distinguished South Carolinian lawyer, statesman, and soldier. He was nominated in South Carolina for the Presidency but declined because of health reasons.

According to the 1910 census, the total population of the county was 24,436. Of the total number, about 69 percent was rural. By 1970, the total population of the county had risen to 55,112. Valdosta, the county seat, had a population of 7,656 in 1910 and 32,483 in 1970. The population of the county and the county seat maintains a slow but steady growth. In early 1975 the estimated population of Valdosta was about 38,000; the population of Lowndes County was about 60,000.

Farming

The early settlers raised cattle and produced subsistence crops. Livestock and livestock products were marketed in Savannah.

The county was originally heavily covered with longleaf pine. The turpentine industry and lumbering operations were important to the early settlers, but these industries are becoming less important. The production of pulpwood has become a major industry. Much of the cutover land and many fields have been planted to an improved strain of slash pine.

Sea Island cotton was one of the first crops grown commercially, but the boll weevil between 1917 and 1920 eliminated the longtime staple. Valdosta was the largest inland market in the world for Sea Island cotton. Short staple cotton was later grown, but costly and scarce labor coupled with low prices eliminated cotton from Lowndes County. Tobacco became the main cash crop about 1918, and in 1974, 8,695,803 pounds was grown.

Farming is favored by a temperate climate, a long growing season, well distributed rainfall, and responsive soils. According to the Census of Agriculture, about 50 percent of the total acreage of the county was in farms in 1969. At that time there were 774 farms; each averaged about 210 acres.

The farms are mostly of the general type. Farming is diversified, and row crops, pasture, livestock, and wood products all contribute to farm income. In 1974 corn was grown on 36,300 acres and most was harvested for grain; peanuts were grown on 620 acres; tobacco, on 4,591 acres; and soybeans, on 6,900 acres. The acreage in soybeans has increased since 1969.

The enactment of the Soil Conservation District legislation in 1937 stirred the interest of many landowners in Lowndes County, but it was not until October 29, 1946, that Lowndes County became the fifth county of the six-county Alapaha Soil and Water Conservation District.

The introduction of Coastal bermudagrass in 1947 was promoted by the Soil Conservation District. Coastal bermudagrass increased the acreage in improved permanent pasture, which in turn greatly increased livestock farming.

The urban growth of Valdosta and the construction of Interstate Highway 75 through Lowndes County has taken much valuable farmland out of production.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the 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, which has been changed very little by leaching or by the action of plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

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

The areas shown on a detailed soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the section "Soil maps for detailed planning." Units (associations) of the general soil map are discussed in the section "General soil map for broad land use planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of rangeland and woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows, in color, map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, a map unit, or association, consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

Nearly level, predominantly poorly drained soils

Four associations in Lowndes County consist of nearly level, predominantly poorly drained soils. Slopes range from 0 to 2 percent. The soils are on bottom lands, terraces, and flats and in ponded areas, depressions, and drainageways.

1. Johnston association

Loamy soils, on bottom lands

This association consists of long, narrow areas of soils on bottom lands that extend for miles along the major creeks. It makes up about 6 percent of the county. Johnston soils make up about 80 percent of the association, and minor soils about 20 percent.

Johnston soils are very poorly drained. Typically, the surface layer is very dark gray. The upper part is loam, and the lower part is sandy loam that extends to a depth of 30 inches. The underlying stratified material to a depth of 65 inches is dark gray sandy loam and light brownish gray sand.

Minor soils in this association are Pelham and Albany soils. These soils are slightly higher on the landscape than Johnston soils.

Most of this association is in hardwood trees and a few pine trees. The main concerns of management are wetness and flooding. Equipment limitations and seedling mortality are concerns in managing this association for woodland. Because of wetness and frequent flooding, limitations are severe for all nonfarm uses.

2. Myatt-Osier-Ousley association

Loamy and sandy soils, on low stream terraces; and sandy soils, on bottom lands

This association consists of long, narrow areas of soils on bottom lands and low terraces near the major streams. It makes up about 9 percent of the county. Myatt and Osier soils make up about 73 percent of the association; Ousley soils, about 17 percent; and minor soils, about 10 percent.

Osier soils commonly are adjacent to the stream channel. Myatt and Ousley soils are within the flood plain but are away from the stream channel. Ousley soils are somewhat higher on the landscape within the flood plains.

Myatt soils are poorly drained. Typically, the surface layer is fine sandy loam about 15 inches thick. It is dark grayish brown in the upper part and light brownish gray in the lower part. The subsoil is gray with yellowish brown mottles. It extends to a depth of 60 inches or more; it is sandy clay loam in the upper part, clay loam in the middle part, and sandy loam in the lower part.

Osier soils are poorly drained. Typically, the surface layer is grayish brown sand about 12 inches thick. The underlying material to a depth of 60 inches is light brownish gray and gray sand with brown mottles.

Ousley soils are moderately well drained. Typically, the surface layer is loamy fine sand about 17 inches thick. It is dark gray in the upper part and grayish brown in the lower part. Below is pale yellow sand mottled dominantly brown and gray to a depth of about 43 inches. This is underlain by light gray fine sand, mottled with brown, to a depth of about 82 inches.

Minor soils in this association are the somewhat poorly drained Wahee soils. These soils are on slightly higher landscape positions, as are Ousley soils, but they are not so well drained.

Most of this association is in woodland, but some is in pasture. This association has high potential for sweetgum, loblolly pine, and slash pine. Equipment limitations and seedling mortality are concerns in managing this association for woodland. The drainage system is composed of sluggish intermittent streams in poorly defined channels.

Because of wetness and flooding, these soils have severe limitations for nonfarm uses.

3. Dasher association

Organic soils, in ponded areas

This association consists of soils in marshes, swamps, and drainageways. It makes up about 2 percent of the county. Dasher soils make up about 64 percent of the association, and minor soils about 36 percent.

Dasher soils are very poorly drained. Typically, the surface layer is black muck about 8 inches thick. The underlying organic material extends to a depth of 75 inches or more; it is dark reddish brown in the upper layers and dark brown in the lower layer.

Pelham and Bayboro soils are minor in extent in this association; they share the same landscape with Dasher soils.

This association is under water except during dry seasons. Most of the association is in hardwood trees and aquatic plants. Because of ponding, this association is severely limited for most nonfarm uses.

4. Mascotte-Albany-Pelham association

Soils that have a sandy surface layer and a loamy or sandy subsoil, on flats and in depressions and drainageways

This association consists of soils on broad flats and in depressions and drainageways. Numerous intermittent ponds ranging from a few acres to many acres in size are throughout the association. The association makes up about 11 percent of the county. Mascotte soils make up about 52 percent of the association; Albany soils, about 30 percent; Pelham soils, about 12 percent; and minor soils, about 6 percent.

Mascotte soils are poorly drained and are on broad flats. Typically, the surface layer is black sand about 5 inches thick. The subsurface layer is light brownish gray sand about 10 inches thick. This is underlain by a weakly cemented layer of sand that extends to a depth of 26 inches; it is very dark brown in the upper part, dark reddish brown mottled with dark brown in the middle part, and dark brown mottled with yellowish brown in the lower part; the sand grains are coated with organic matter. Below this is pale yellow sand with brownish yellow mottles to a depth of 32 inches. This layer is underlain by light gray sandy clay loam mottled with brownish yellow and yellowish brown to a depth of 65 inches.

Albany soils are somewhat poorly drained and are on low flats. Typically, the surface layer is dark grayish brown sand about 8 inches thick. The subsurface layer is mainly yellow loamy sand that extends to a depth of about 55 inches. The subsoil to a depth of 65 inches is yellowish brown sandy loam with light gray and light yellowish brown mottles.

Pelham soils are poorly drained. They are in depressions and drainageways. Typically, the surface layer is black loamy sand about 8 inches thick. The subsurface layer is gray loamy sand about 17 inches thick. The subsoil extends to a depth of 65 inches or more; it is gray sandy loam mottled with very pale brown in the upper part and gray sandy clay loam mottled with yellowish brown in the lower part.

Minor soils in this association are the somewhat poorly drained Leefield soils and the poorly drained Olustee soils. These soils occupy the same flat landscape as Mascotte and Albany soils.

Most of this association is in woodland, but some is used for row crops and pasture. Most of this association requires drainage if row crops are to be grown. The drainage system is composed of sluggish intermittent streams in poorly defined channels.

This association has medium potential for loblolly pine and slash pine. Equipment limitations and seedling mortality are concerns in managing this association for woodland. Because of wetness, this association has moderate or severe limitations for nonfarm uses.

Nearly level, predominantly somewhat poorly drained soils

One association in Lowndes County consists of nearly level, predominantly somewhat poorly drained soils. Slopes range from 0 to 2 percent. The soils are on low uplands and in depressions and drainageways.

5. Leefield-Pelham-Clarendon association

Soils that have a sandy surface layer and a loamy subsoil, on low uplands and in depressions and drainageways

This association consists of soils on smooth, low, flat uplands and in depressions and drainageways. Many intermittent ponds are in the association, and the heads of a few streams are near the outer boundary. The association makes up about 9 percent of the county. Leefield soils make up 65 percent of the association; Pelham soils, about 12 percent; Clarendon soils, about 11 percent; and minor soils, about 12 percent.

Leefield and Clarendon soils are on the higher parts of the landscape, and Pelham soils are in depressions and along drainageways.

Leefield soils are somewhat poorly drained. Typically, the surface layer is very dark gray loamy sand about 8 inches thick. The subsurface layer is light gray loamy sand that extends to a depth of 32 inches. The subsoil to a depth of 65 inches is light yellowish brown sandy clay loam; it is mottled with yellowish brown and light gray in the upper part and with red and gray in the lower part. Plinthite and nodules of ironstone are in the lower part below a depth of 38 inches. Plinthite content ranges from 5 to 10 percent.

Pelham soils are poorly drained. Typically, the surface layer is black loamy sand about 8 inches thick. The subsurface layer is gray loamy sand about 17 inches thick.

The subsoil extends to a depth of 65 inches or more; it is gray sandy loam mottled with very pale brown in the upper part and gray sandy clay loam mottled with yellowish brown in the lower part.

Claredon soils are moderately well drained. Typically, the surface layer is dark gray loamy sand about 8 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more; it is light yellowish brown and brownish yellow in the upper part, and it is mottled with brownish yellow, light yellowish brown, strong brown, red, and light gray in the lower part. Plinthite is in the lower part of the subsoil. Below a depth of about 32 inches, plinthite content ranges from 5 to 8 percent. Nodules of ironstone are throughout the profile.

Minor soils in this association are the somewhat poorly drained Albany soils and the poorly drained Olustee soils. These soils are on the same low, flat landscape positions as Leefield and Clarendon soils.

Most of this association is in trees, but some is used for cultivated crops and pasture. Most of the association is well suited to row crops, and plant response is good if drainage measures are installed. Pelham soils are better suited to pasture or woodland than to crops. This association has moderate or severe limitations for most nonfarm uses because of wetness.

Nearly level to gently sloping, predominantly well drained soils

Four associations in Lowndes County consist of nearly level to gently sloping, predominantly well drained soils. Slopes range from 0 to 12 percent. The soils are on upland ridgetops, hillsides, and flats and in depressions and drainageways.

6. Tifton-Pelham-Fuquay association

Soils that have a sandy surface layer and a loamy subsoil, on upland ridgetops and in depressions and drainageways

This association consists of nearly level and gently sloping soils on ridgetops and hillsides and in drainageways that dissect the ridges. The ridges are about one-fourth to three-fourths of a mile wide, and the drainageways are about 50 to 250 feet wide. The association makes up about 36 percent of the county. Tifton soils make up about 49 percent of the association; Pelham soils, about 16 percent; Fuquay soils, about 8 percent; and minor soils about 27 percent.

Tifton and Fuquay soils are on the ridges, and Pelham soils are in draingeways and intermittently ponded depressions.

Tifton soils are well drained and nearly level or very gently sloping. Typically, the surface layer is brown loamy sand about 8 inches thick. The subsoil is sandy clay loam and extends to a depth of 60 inches or more; it is yellowish brown in the upper part and yellowish brown mottled with red and yellow in the lower part. Plinthite is at a depth of 41 inches. Plinthite content ranges from 25 to 30 percent. Ironstone nodules are throughout the profile.

Pelham soils are poorly drained and nearly level. Typically, the surface layer is black loamy sand about 8 inches thick. The subsurface layer is gray loamy sand about 17 inches thick. The subsoil extends to a depth of 65 inches or more; it is gray sandy loam mottled with very pale brown in the upper part and gray sandy clay loam mottled with yellowish brown in the lower part.

Fuquay soils are well drained and nearly level or very gently sloping. Typically, the surface layer is dark grayish brown loamy sand about 7 inches thick. The subsurface layer is light yellowish brown loamy sand about 14 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more; it is brownish yellow in the upper part and brownish yellow mottled with yellowish red and light gray in the lower part. Plinthite is in the lower part beginning at a depth of 40 inches. Plinthite content is 10 to 15 percent.

Minor soils in this association are the well drained Dothan, Nankin, and Sunsweet soils and the moderately well drained Stilson soils. Dothan, Nankin, and Sunsweet soils are on ridges and hillsides, as are Tifton and Fuquay soils, and the more sloping Sunsweet soils are on short hillsides. Stilson soils are on low uplands.

Most of the cultivated land in Lowndes County is in this association. Corn, tobacco, soybeans, cotton, and peanuts are the main crops. Also, some areas are used for permanent pasture. The main concern of management is control of erosion on the gently sloping soils. Pelham soils are used mainly for producing timber, but some areas are in pasture. This association generally has slight limitations for most nonfarm uses, but because of wetness and flooding Pelham soils are severely limited.

7. Valdosta-Pelham-Lowndes association

Sandy soils and soils that have a thick, sandy surface layer and a loamy subsoil, on broad ridgetops and hillsides and in drainageways

This association consists chiefly of nearly level to very gently sloping soils on broad ridgetops, gently sloping to sloping soils on hillsides, and nearly level soils in drainageways. Limestone outcrops and lime sinks are in the association. This association is locally referred to as the "lake country." The association makes up about 8 percent of the county. The Valdosta soils make up about 40 percent of the association; Pelham soils, about 24 percent; Lowndes soils, about 13 percent; and minor soils, about 23 percent.

Valdosta soils are on ridgetops, Lowndes soils are on hillsides, and Pelham soils are in drainageways.

Valdosta soils are well drained or excessively drained and nearly level or very gently sloping. Typically, the surface layer is dark grayish brown sand about 10 inches thick. Below this, to a depth of about 60 inches, is mostly brown loamy sand. This is underlain by alternating layers of light yellowish brown sand and strong brown sandy loam that extend to a depth of about 100 inches.

Pelham soils are poorly drained and nearly level. Typically, the surface layer is black loamy sand about 8 inches thick. The subsurface layer is gray loamy sand about 17 inches thick. The subsoil extends to a depth of 65 inches or more; it is gray sandy loam mottled with very pale brown in the upper part and gray sandy clay loam mottled with yellowish brown in the lower part.

Lowndes soils are well drained and gently sloping or sloping. Typically, the surface layer is loamy sand that extends to a depth of 30 inches; it is dark grayish brown in the upper part, dark yellowish brown in the middle part, and brown in the lower part. The subsoil is strong brown, and it extends to a depth of 76 inches. It is sandy clay loam in the upper part; individual layers of loamy sand, sandy clay loam, and sandy clay in the middle part; and sandy loam in the lower part.

Minor soils in this association are the moderately well drained Chipley soils and the excessively drained Lakeland soils. These soils are on the same landscape positions as Valdosta and Lowndes soils.

Most of this association is wooded, but some areas are used for row crops and pasture. A few areas have been planted to slash pine. The main concern of management is the low available water capacity in the sandy, excessively drained or well drained soils. Flooding and wetness are the main limitations on Pelham soils. This association generally has moderate limitations for most nonfarm uses because of slope, sandiness, or seepage. The Pelham soils, however, are severely limited because of flooding and wetness.

8. Lakeland-Fuquay-Pelham association

Sandy soils and soils that have a thick, sandy surface layer and a loamy subsoil, on broad ridgetops and in drainageways

This association consists chiefly of nearly level to sloping soils on broad ridgetops and nearly level soils in narrow drainageways that dissect the ridges. The association makes up 7 percent of the county. The Lakeland soils make up 51 percent of the association; Fuquay soils, about 17 percent; Pelham soils, about 15 percent; and minor soils, about 17 percent.

Lakeland and Fuquay soils are on ridgetops, and Pelham soils are in drainageways.

Lakeland soils are excessively drained and nearly level to gently sloping. Typically, the surface layer is sand about 6 inches thick. The upper part is dark grayish brown; the lower part is very dark gray. The underlying material to a depth of 80 inches is pale yellow and yellow sand.

Fuquay soils are well drained and nearly level or very gently sloping. Typically, the surface layer is dark grayish brown loamy sand about 7 inches thick. The subsurface layer is light yellowish brown loamy sand about 14 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 60 inches or more; it is brownish yellow in the upper part and brownish yellow mottled with yellowish red and light gray in the lower part. Plinthite is below a depth of 46 inches. Plinthite content is 10 to 15 percent.

Pelham soils are poorly drained and nearly level. Typically, the surface layer is black loamy sand about 8 inches thick. The subsurface layer is gray loamy sand about 17 inches thick. The subsoil extends to a depth of 65 inches or more; it is gray sandy loam mottled with very pale brown in the upper part and gray sandy clay loam mottled with yellowish brown in the lower part.

Minor soils in this association are the somewhat poorly drained Albany soils, the moderately well drained Chipley soils, and the poorly drained Mascotte soils. These soils are on the nearly level parts of the landscape.

Most of the association is wooded. Many areas formerly cultivated have been planted to slash pine. The main concern of management is the low or very low available water capacity of the sandy, excessively drained or well drained soils. Irrigation is needed during dry seasons for tobacco. Flooding and wetness are the main limitations on Pelham soils. Drainage is needed for pine trees in some places. Most of this association has severe limitations for sanitary facilities because of seepage or sandiness. The Pelham soils, however, are severely limited because of flooding and wetness.

9. Lakeland-Albany-Pelham association

Sandy soils and soils that have a thick, sandy surface layer and a loamy subsoil, on broad ridgetops and flats and in depressions

This association consists mainly of nearly level or very gently sloping soils on broad ridges and nearly level soils on flats and in depressions. Several streams originate within the association. The association makes up about 12 percent of the county. The Lakeland soils make up about 51 percent of the association; Albany soils, about 20 percent; Pelham soils, about 9 percent; and minor soils, about 20 percent.

Lakeland and Albany soils are on ridgetops, and Pelham soils are in depressions.

Lakeland soils are excessively drained and nearly level or very gently sloping. Typically, the surface layer is sand about 6 inches thick. The upper part is dark grayish brown, and the lower part is very dark gray. The underlying material to a depth of 80 inches is pale yellow and yellow sand.

Albany soils are somewhat poorly drained and nearly level. Typically, the surface layer is dark grayish brown sand about 8 inches thick. The subsurface layer is mainly yellow loamy sand that extends to a depth of about 55 inches. The subsoil to a depth of 65 inches is yellowish brown sandy loam with light gray and light yellowish brown mottles.

Pelham soils are poorly drained and nearly level. Typically, the surface layer is black loamy sand about 8 inches thick. The subsurface layer is gray loamy sand about 17 inches thick. The subsoil extends to a depth of 65 inches or more; it is gray sandy loam mottled with very pale brown in the upper part and gray sandy clay loam mottled with yellowish brown in the lower part.

Minor soils in this association are the poorly drained Olustee and Mascotte soils and the very poorly drained Dasher soils. Olustee and Mascotte soils are on low flats, and the Dasher soils are in depressions.

Most of this association is wooded, but some areas are in cultivated crops. A few cleared areas have been planted to slash pine. The main concern of management is the very low available water capacity of the sandy, excessively drained soils. Wetness is the main limitation of Albany and Pelham soils. Most of this association has severe limitations for sanitary facilities because of seepage or sandiness. The Albany and Pelham soils, however, are severely limited because of wetness.

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

Soils that have similar profiles make up a *soil series.* Except for allowable differences in texture of the surface layer or of the underlying substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement in the profile. A soil series commonly is named for a town or geographic feature near the place where a soil of that series was first observed and mapped.

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, stoniness, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, Tifton loamy sand, 0 to 2 percent slopes, is one of several phases within the Tifton series.

Some map units are made up of two or more dominant kinds of soil. Such map units are called soil complexes and soil associations.

A *soil complex* consists of areas of two or more soils that are so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area includes some of each of the two or more dominant soils, and the pattern and proportion are somewhat similar in all areas. Leefield-Urban land complex is an example.

A *soil association* is made up of soils that are geographically associated and are shown as one unit on the map because it is not practical to separate them. A soil association has considerable regularity in geographic pattern and in the kinds of soil that are a part of it. The extent of the soils can differ appreciably from one delineation to another; nevertheless, interpretations can be made for use and management of the soils. Myatt-Osier association is an example.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

The acreage and proportionate extent of each map unit are given in table 4, and additional information on properties, limitations, capabilities, and potentials for many soil uses is given for each kind of soil in other tables in this survey. (See "Summary of tables.") Many of the terms used in describing soils are defined in the Glossary.

AdA—Albany sand, 0 to 2 percent slopes. This deep, somewhat poorly drained, nearly level soil is on low uplands on the Coastal Plain. Slopes are smooth or convex. Individual areas are 10 to 50 acres.

Typically, the surface layer is dark grayish brown sand about 8 inches thick. The subsurface layer is mainly yellow loamy sand that extends to a depth of about 55 inches. The subsoil to a depth of 65 inches is yellowish brown sandy loam with light gray and light yellowish brown mottles.

Included with this soil in mapping are small areas of Lakeland and Leefield soils. Also included are Albany soils that have a fine sand or loamy sand surface layer.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout. Permeability is rapid in the thick surface layer and moderate in the subsoil. Available water capacity is low. This soil has good tilth and can be worked throughout a wide range of moisture conditions. A water table is at a depth of 12 to 30 inches late in winter and early in spring.

This soil has medium potential for row crops. Its potential is limited because of wetness. Erosion is not a hazard in most places.

This soil has medium potential for slash pine and loblolly pine. Longleaf pine can be grown, but the potential is lower. Equipment limitations, seedling mortality, and plant competition are management concerns on this soil.

This soil has moderate or low potential for most nonfarm uses. Wetness and seepage are the main limitations. In many places wetness can be overcome if drainage measures are installed. Capacity subclass IIIw.

Bm—Bayboro loam. This deep, very poorly drained, nearly level soil is in depressions and bays on the Coastal Plain and in the Atlantic Coast Flatwoods. Slopes are concave. They range from 0 to 2 percent, but most slopes are less than 1 percent. Individual areas are 5 to 500 acres.

Typically, the surface layer is black loam about 11 inches thick. The subsoil is dark grayish brown clay loam in the upper part, dark grayish brown clay in the middle part, and gray clay with strong brown and yellowish brown mottles in the lower part. It extends to a depth of 65 inches or more.

Included with this soil in mapping are muck or peat soils in depressions. Also included are Bayboro soils that have a clay loam or fine sandy loam surface layer. In addition, other soils with a loam or fine sandy loam surface layer are included.

This soil is medium in natural fertility and has high organic matter content in the surface layer. Permeability is slow, and available water capacity is high. The soil is ponded to a depth of 6 inches in late winter and spring.

Unless drained, this soil has low potential for row crops because of wetness and slow percolation. None of this soil is in pasture or row crops in Lowndes County (fig. 3).

This soil has high potential for slash pine, loblolly pine, and sweetgum if drained. Equipment limitations and seedling mortality are management concerns unless drainage measures are installed.

This soil has very low potential for most nonfarm uses. Wetness and the slowly permeable subsoil are the main limitations. Capability subclass VIw.

ChA—Chipley sand, 0 to 2 percent slopes. This deep, moderately well drained, nearly level soil is on low flats on the lower Coastal Plain. Individual areas are 15 to 100 acres.

Typically, the surface layer is very dark gray sand about 6 inches thick. The underlying material is sand to a depth of 80 inches. The upper part is brownish with light gray mottles, the middle part is brownish yellow with grayish mottles, and the lower part is light gray with brownish mottles.

Included with this soil in mapping are small areas of Albany and Lakeland soils.

This soil is low in natural fertility and organic matter content. It is very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is rapid, and available water capacity is low. The soil has good tilth. A water table is at a depth of 24 to 36 inches during late winter and early spring.

This soil has low potential for row crops. Its potential is limited because of wetness and rapid percolation. It has high potential for hay and pasture. Crops respond well to good management, especially the addition of fertilizer. The water table commonly fluctuates during the growing season, and drainage and irrigation are needed in most places if tobacco or other row crops are grown.

This soil has high potential for slash pine, loblolly pine, and longleaf pine. Equipment limitations and plant competition are management concerns.

This soil has low potential for most nonfarm uses because of wetness and seepage. Contamination of nearby water supplies is a hazard if this soil is used for sanitary facilities. Capability subclass IIIs.

Cn—Clarendon loamy sand. This moderately well drained, nearly level soil is on low uplands on the Coastal Plain. Slopes are smooth. They range from 0 to 3 percent but are dominantly less than 2 percent. Individual areas are 15 to 50 acres.

Typically, the surface layer is dark gray loamy sand about 8 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more; it is light yellowish brown and brownish yellow in the upper part and is mottled with brownish yellow, light yellowish brown, strong brown, red, and light gray in the lower part. Plinthite is in the lower part of the subsoil. Below a depth of about 32 inches, plinthite content ranges from 5 to 8 percent. Nodules of ironstone are throughout the soil.

Included with this soil in mapping are small areas of Leefield and Stilson soils. Also included are Clarendon soils that have a loamy fine sand, sandy loam, fine sandy loam, or sand surface layer.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the soil and moderately slow in the lower part. Available water capacity is medium. The soil has good tilth. A water table is at a depth of 18 to 30 inches during late winter and early spring.

This soil has high potential for row crops. Its potential is limited because of wetness from December through March. It has high potential for hay and pasture. Good tilth is easily maintained by returning crop residue to the soil.

This soil has high potential for slash pine, loblolly pine, sweetgum, yellow-poplar, and water oak. It has moderate equipment limitations.

This soil has low potential for most nonfarm uses. Wetness is the primary limitation. A layer that restricts drainage is commonly between depths of 39 and 65 inches. If drainage tile is used, care must be taken to keep the tile above this layer. Capability subclass IIw.

Da—Dasher muck. This deep, very poorly drained, nearly level soil is in marshes, swamps, and poorly defined drainageways. Relief is concave. Slopes are less than 1 percent. Individual areas are 25 to 150 acres.

Typically, the surface layer is black muck about 8 inches thick. The underlying organic material extends to a depth of 75 inches or more; it is dark reddish brown in the upper part and dark brown in the lower part.

Included with this soil in mapping are small areas of Bayboro and Pelham soils.

This soil is low in natural fertility and very high in organic matter content. It is extremely acid in all horizons. Permeability is moderately rapid, and available water capacity is high. The soil is ponded to a depth of 36 inches during winter, spring, and summer.

This soil has low potential for row crops and pasture. Even with a water table depth control system, improved pasture is difficult to maintain.

This soil has low potential for nonfarm uses. Wetness and flooding are primary limitations, and they can be overcome only by major drainage and flood prevention measures.

If this soil is drained, it has high potential as a source of peat moss. This organic material is mixed with mineral soils and used as a soil conditioner. Capability subclass VIIw.

DoB—Dothan loamy sand, 1 to 5 percent slopes. This deep, well drained, nearly level or very gently sloping soil is on ridgetops and side slopes on the Coastal Plain uplands. Slopes are smooth and convex. Individual areas are 10 to 35 acres.

Typically, the surface layer is grayish brown loamy sand about 9 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of about 65 inches. It is brown in the upper part, yellowish brown in the middle part, and yellowish brown mottled with red in the lower part. Plinthite is in the lower part of the subsoil. Below a depth of 47 inches, plinthite content is about 10 percent.

Included with this soil in mapping are small areas of Fuquay and Tifton soils. Also included are Dothan soils that have a sandy loam, fine sandy loam, and loamy fine sand surface layer.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid except for the surface layer in limed areas. Permeability is moderate in the upper part of the soil and moderately slow in the lower part. Available water capacity is medium. The soil has good tilth. A perched water table is at a depth of 42 to 48 inches during late winter and early spring.

This soil has high potential for row crops, hay, and pasture. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown where slopes are more than 2 percent. Minimum tillage, using cover crops, and including grasses and legumes in the cropping system help reduce runoff and control erosion.

This soil has high potential for slash pine and loblolly pine. There are no significant limitations to woodland use or management.

This soil has high or medium potential for most nonfarm uses. The lower part of the soil has slow permeability; this is a severe limitation for septic tank absorption fields. In most places, this limitation can be overcome by good design and construction. Wetness causes severe limitations for trench type sanitary landfills. Capability subclass IIe.

FsB—Fuquay loamy sand, 0 to 5 percent slopes. This deep, well drained, nearly level or very gently sloping soil is on ridgetops and side slopes on the Coastal Plain uplands. Slopes are smooth and convex. Individual areas are 10 to 40 acres.

Typically, the surface layer is dark grayish brown loamy sand about 7 inches thick. The subsurface layer is light yellowish brown loamy sand about 14 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 60 inches or more; it is brownish yellow in the upper part and brownish yellow mottled with yellowish red and light gray in the lower part. Plinthite is in the lower part at a depth of 46 inches. Plinthite content is 10 to 15 percent.

Included with this soil in mapping are small areas of Dothan and Lakeland soils. In places, soils that are about 5 to 15 percent nodules of ironstone in the upper part of the soil are included. Also included are Fuquay soils that have a sand surface layer.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layers in limed areas. Permeability is rapid in the sandy upper part of the soil and slow in the loamy lower part. Available water capacity is low. The soil has good tilth. A perched water table is at a depth of 30 to 48 inches during late winter and early spring.

This soil has medium potential for row crops, hay, and pasture (fig. 4). Its potential is limited because of low available water capacity. The use of cover crops helps control erosion.

This soil has medium potential for slash pine and loblolly pine. Equipment limitations and seedling mortality are management concerns on this soil.

This soil has high potential for most nonfarm uses. The sandy surface layer limits most recreational uses. The lower part of the soil is slowly permeable; this is a limitation for septic tank absorption fields. In most places, this limitation can be overcome by good design and construction. Capability subclass IIs.

Gr—Grady sandy loam. This poorly drained soil is in oval depressions on the Coastal Plain. Slopes are smooth and concave. They range from 0 to 2 percent, but most slopes are less than 1 percent. Individual areas are 4 to 10 acres.

Typically, the surface layer is dark gray sandy loam about 6 inches thick. The subsoil extends to a depth of 65 inches or more. It is grayish brown sandy clay loam and dark gray sandy clay in the upper part; gray clay mottled with brown in the middle part; and gray clay mottled with yellowish brown and light yellowish brown in the lower part.

Included with this soil in mapping are small areas of Clarendon and Pelham soils. Also included are Grady soils that have a loam or clay loam surface layer.

This soil is low in natural fertility and has low organic matter content. It is very strongly acid or strongly acid throughout. Permeability is slow, and available water capacity is medium. The soil has good tilth. The surface is ponded to a depth of 24 inches from winter to early summer.

This soil has low potential for row crops. If drained, however, this soil provides good garden sites and has medium potential for hay and pasture.

If drained, this soil has high potential for slash pine, loblolly pine, and sweetgum. Equipment limitations and seedling mortality are management concerns unless drainage measures are installed.

This soil has low potential for all nonfarm uses. Wetness and slow percolation are the main limitations. Capability subclass Vw.

Jo—Johnston loam. This very poorly drained soil is near drainageways and major creeks. Slopes are concave. They range from 0 to 2 percent, but most slopes are less than 1 percent. Individual areas in most places extend for miles along the creeks.

Typically, the surface layer is very dark gray. The upper part is loam, and the lower part is sandy loam that extends to a depth of 30 inches. The underlying material to a depth of 65 inches is stratified dark gray sandy loam and light brownish gray sand.

Included with this soil in mapping are small areas of Albany and Pelham soils. Also included are Johnston soils that have a mucky loam, fine sandy loam, and sandy loam surface layer.

This soil is low in natural fertility and high in organic matter content. It is very strongly acid or strongly acid throughout. Permeability is moderately rapid in the surface layer and rapid in the underlying material. Available water capacity is medium. The surface is ponded to a depth of 12 inches from winter to early summer.

This soil has low potential for row crops. Its potential is limited because of wetness.

If drained, this soil has high potential for sweetgum, water oak, slash pine, and loblolly pine. Equipment limitations and seedling mortality are management concerns unless drainage measures are installed.

This soil has very low potential for all nonfarm uses. Wetness and flooding are the main limitations that could be overcome by major flood control and drainage measures. Capability subclass VIIw.

LaC—Lakeland sand, 0 to 8 percent slopes. This deep, excessively drained, nearly level to gently sloping soil is on ridgetops and hillsides on the Coastal Plain. In most places, slopes are smooth and convex, but on the east sides of the major streams, they are commonly rough and broken. Individual areas are 20 to 75 acres.

Typically, the surface layer is sand about 6 inches thick. The upper part is dark grayish brown, and the lower part is very dark gray. The underlying material to a depth of 80 inches is pale yellow and yellow sand.

Included with this soil in mapping are small areas of soils that have an underlying layer mottled with gray or light gray.

This soil is very low in natural fertility and organic matter content. It is strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is very rapid, and available water capacity is very low. The soil has good tilth. The root zone is deep and is easily penetrated by plant roots.

This soil has low potential for row crops. Its potential is limited because of very low available water capacity. If the soil is irrigated, it has high potential for tobacco and similar crops. This soil has medium potential for hay and pasture. The use of cover crops helps to control erosion.

This soil has medium potential for slash pine, loblolly pine, and longleaf pine. Equipment limitations and seedling mortality are management concerns.

This soil has medium potential for most nonfarm uses. Seepage and sandiness are the main limitations. Contamination of nearby water supplies is a hazard if this soil is used for sanitary facilities. Capability subclass IVs.

Le—Leefield loamy sand. This somewhat poorly drained, nearly level soil is on low uplands on the Coastal Plain. Slopes are smooth. They range from 0 to 2 percent. Individual areas are 15 to 25 acres.

Typically, the surface layer is very dark gray loamy sand about 8 inches thick. The subsurface layer is light gray loamy sand that extends to a depth of 32 inches. The subsoil to a depth of 65 inches is light yellowish brown sandy clay loam; it is mottled with yellowish brown and light gray in the upper part and with red and gray in the lower part. Plinthite and nodules of ironstone are in the lower part below a depth of 38 inches. Plinthite content ranges from 5 to 10 percent.

Included with this soil in mapping are small areas of Clarendon, Pelham, and Stilson soils. Also included are Leefield soils that have a sand surface layer.

This soil is low in natural fertility and organic matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is low. The soil has good tilth. A water table is at a depth of 18 to 20 inches late in winter and early in spring.

This soil has medium potential for row crops. Its potential is limited because of wetness. In many places, drain tile can be installed to lower the water table. The soil has high potential for hay and pasture.

This soil has medium potential for slash pine and loblolly pine. Equipment limitations and seedling mortality are management concerns.

This soil has low potential for most nonfarm uses. Wetness is the main limitation. In many places, the water table could be lowered by installing drainage measures. Capability subclass IIw.

Lu—Leefield-Urban land complex. This complex consists of nearly level Leefield soils and Urban land that are so intermingled that they could not be separated at the scale selected for mapping. It is in heavily populated areas and in industrial areas. Slopes are smooth and range from 0 to 2 percent.

Leefield loamy sand makes up about 50 to 60 percent of each mapped area. Typically, Leefield soils have a very dark gray loamy sand surface layer about 8 inches thick. The subsurface layer is light gray loamy sand that extends to a depth of 32 inches. The subsoil to a depth of 65 inches is light yellowish brown sandy clay loam; it is mottled with yellowish brown and light gray in the upper part and with red and gray in the lower part. Plinthite and nodules of ironstone are in the lower part at a depth of 38 inches. Plinthite content ranges from 10 to 15 percent.

This soil is low in natural fertility and organic matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is low. The soil has good tilth. A water table is at a depth of 18 to 30 inches during late winter and early spring.

Urban land makes up about 40 to 50 percent of each mapped area. The soils have been altered by grading, cutting, filling, shaping, and smoothing for community development. Most Urban land is used for private dwellings, industrial sites, streets and sidewalks, shopping centers, parking lots, airports, schools, and churches.

This complex has low potential for nonfarm uses unless the soils are drained. Wetness is a limitation, but the installation of drainage measures can help overcome this restriction. Capability subclass IIw.

LwC—Lowndes loamy sand, 5 to 12 percent slopes. This deep, well drained, gently sloping to sloping soil is on hilly sides of the Coastal Plain uplands. Slopes are convex. Individual areas are 25 to 50 acres.

Typically, the surface layer is loamy sand that extends to a depth of 30 inches. It is grayish brown in the upper part, dark yellowish brown in the middle part, and brown in the lower part. The subsoil is strong brown, and it extends to a depth of 76 inches. It is sandy clay loam in the upper part; individual layers of loamy sand, sandy clay loam, and sandy clay in the middle part; and sandy loam in the lower part.

Included with this soil in mapping are small areas of Valdosta and Lakeland soils. Also included are Lowndes soils that have a sand surface layer. In a few places, small areas of limestone material are near the surface and are included in mapping.

This soil is low in natural fertility and organic matter content. It is very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. The soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops. Its potential is limited because of low available water capacity. The use of cover crops helps control erosion. The soil has medium potential for hay and pasture.

This soil has medium potential for slash pine, loblolly pine, and longleaf pine. Equipment limitations and seedling mortality are management concerns.

This soil has medium potential for most nonfarm uses. Slope is the primary limitation. The lower part of the soil is slowly permeable; this is a limitation for septic tank absorption fields. In most places, this limitation can be overcome by good design and construction. Capability subclass IIw.

Mn—Mascotte sand. This poorly drained, nearly level soil is on low flats in the Atlantic Coast Flatwoods. Slopes are smooth. They range from 0 to 2 percent, but most slopes are less than 1 percent. Individual areas are 15 to 50 acres.

Typically, the surface layer is black sand about 5 inches thick. The subsurface layer is light brownish gray sand about 10 inches thick. This is underlain by a weakly cemented layer of sand that extends to a depth of 26 inches; it is very dark brown in the upper part, dark reddish brown mottled with dark brown in the middle part, and dark brown mottled with yellowish brown in the lower part; the sand grains are coated with organic matter. Below this to a depth of 32 inches is pale yellow sand with brownish yellow mottles. This is underlain to a depth of 65 inches by light gray sandy clay loam mottled with brownish yellow and yellowish brown.

Included with this soil in mapping are small areas of Leefield, Olustee, and Pelham soils. Also included are a few soils in which the lower part of the subsoil is sandy clay.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout. Permeability is moderate, and available water capacity is low. A water table is at the surface to a depth of 12 inches in late winter and early spring.

This soil has low potential for row crops. Its potential is limited because of wetness. In addition, during dry seasons the weakly cemented hardpan restricts root penetration.

This soil has medium potential for slash pine and loblolly pine. Equipment limitations and seedling mortality are management concerns.

This soil has low potential for most nonfarm uses. Wetness is the primary limitation. Capability subclass IVw.

MO—Myatt-Osier association. This association consists of poorly drained soils in a regular and repeating pattern. The landscape is composed of nearly level flood plains and low terraces near the larger streams. Osier soils are adjacent to the main stream channel, and Myatt soils are on nearby terraces. These soils formed in sediments deposited from nearby streams. Mapped areas are mostly long and range from about 40 to 1,000 acres; individual areas of each soil range from 5 to 50 acres.

Myatt soils make up about 55 percent of the association. Typically, the surface layer is fine sandy loam about 15 inches thick. It is dark grayish brown in the upper part and light brownish gray in the lower part. The subsoil is gray with yellowish brown mottles. It extends to a depth of 60 inches or more; it is sandy clay loam in the upper part, clay loam in the middle part, and sandy loam in the lower part.

Myatt soils have moderate permeability. Available water capacity is high. The soil is strongly acid to very strongly acid. The water table is between the surface and a depth of 12 inches in winter and early in spring.

Osier soils make up about 35 percent of this association. Typically, the surface layer is grayish brown sand about 12 inches thick. The underlying material to a depth of 60 inches is light brownish gray and gray sand with brown mottles.

Osier soils have rapid permeability and low available water capacity. The soil is medium acid through very strongly acid throughout. The water table is between the surface and a depth of 12 inches in winter and early in spring.

Included with these soils in mapping are a few small areas of moderately well drained Ousley soils and somewhat poorly drained Wahee soils. These soils are somewhat higher on the landscape than the Myatt and Osier soils.

This association is wooded. It has low potential for row crops because of wetness.

This association has high potential for loblolly pine and slash pine, but productivity is somewhat less in sandier areas. Equipment limitations and seedling mortality are management concerns unless drainage systems are installed.

This association has low potential for all nonfarm uses. Wetness is the main limitation. Capability subclass Vw.

NkC—Nankin sandy loam, 2 to 8 percent slopes. This well drained, very gently sloping and gently sloping soil is on ridgetops and hillsides of the Coastal Plain uplands. Slopes are smooth and undulating. Individual areas are 5 to 15 acres.

Typically, the surface layer is sandy loam about 8 inches thick. The upper part is dark grayish brown, and the lower part is yellowish brown. The subsoil extends to a depth of 65 inches or more; it is dominantly yellowish brown clay in the upper part and mottled yellow, red, brown, and white sandy clay loam in the lower part.

Included with this soil in mapping are small areas of Dothan, Sunsweet, and Tifton soils. Also included are Nankin soils that have a loamy sand surface layer.

This Nankin soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout. Permeability is moderately slow, and available water capacity is medium. The soil has good tilth.

This soil has medium potential for row crops, hay, and pasture. Its potential is limited because the clayey upper part of the subsoil restricts deep root penetration. Good tilth can be maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has medium potential for loblolly pine and slash pine. There are no significant limitations for woodland use or management.

This soil has medium potential for most nonfarm uses. It has severe limitations for septic tank absorption fields because of the moderately slow permeability in the subsoil. Capability subclass IIIe.

Oa—Olustee sand. This poorly drained, nearly level soil is on low uplands on the lower Coastal Plain. Slopes are smooth. They range from 0 to 2 percent, but most slopes are less than 1 percent. Individual areas are 15 to 25 acres.

Typically, the surface layer is very dark gray sand about 7 inches thick. This is underlain by weakly cemented, very dark grayish brown sand that extends to a depth of about 12 inches. Below this to a depth of 34 inches is light gray sand with yellow and brown mottles. It is underlain to a depth of 65 inches by gray sandy clay loam mottled with brown.

Included with this soil in mapping are small areas of Leefield, Mascotte, and Pelham soils. Also included are Olustee soils that have a fine sand surface layer.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout. Permeability is moderate. Available water capacity is low. The soil has good tilth. The water table is between the surface and a depth of 12 inches during late winter and early spring.

This soil has medium potential for row crops. Its potential is limited because of wetness. Tile drainage and open ditches help lower the water table if a suitable outlet is obtained.

This soil has medium potential for slash pine and loblolly pine. Equipment limitations and seedling mortality are management concerns.

This soil has low potential for most nonfarm uses. Wetness is the primary limitation. Capability subclass IIIw.

Ou—Ousley loamy fine sand. This deep, moderately well drained, nearly level soil is on terraces and flood plains on low coastal plains. Slopes are smooth and convex. Individual areas are 10 to 50 acres.

Typically, the surface layer is loamy fine sand about 17 inches thick. It is dark gray in the upper part and grayish brown in the lower part. Below this to a depth of about 43 inches is pale yellow sand mottled with dominantly brown and gray. This is underlain to a depth of about 82 inches with light gray fine sand mottled with brown.

Included with this soil in mapping are small areas of Wahee soils. Also included are Ousley soils that have a sand surface layer.

This soil is very low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except in limed areas. Permeability is rapid, and available water capacity is low. The soil has good tilth. A water table is at a depth of 18 to 36 inches during late winter and spring.

This soil has low potential for row crops. Its potential is limited because of flooding. It has medium potential for hay and pasture.

This soil has medium potential for slash pine and loblolly pine. Equipment limitations and seedling mortality are management concerns.

This soil has low potential for most nonfarm uses. Flooding is the dominant limitation to use and management. Capability subclass IIIw.

Pe—Pelham loamy sand. This poorly drained, nearly level soil is on broad flats and in depressions and some drainageways. Slopes are smooth and concave in most places. They range from 0 to 2 percent, but most slopes are less than 1 percent. Individual areas are 15 to more than 100 acres.

Typically, the surface layer is black loamy sand about 8 inches thick. The subsurface layer is gray loamy sand about 17 inches thick. The subsoil extends to a depth of 65 inches or more; it is gray sandy loam mottled with very pale brown in the upper part and gray sandy clay loam mottled with yellowish brown in the lower part.

Included with this soil in mapping are soils with a black muck surface layer 4 to 6 inches thick. Also included are Pelham soils that have a sand surface layer, and Leefield, Mascotte, and Olustee soils.

This soil has low natural fertility and moderate organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. Tilth is good. A water table is at a depth of 6 to 18 inches during late winter and early spring.

This soil has low potential for row crops and pasture. Its potential is limited because of wetness and flooding. These limitations can be overcome if this soil is drained and protected from flooding.

This soil has high potential for slash pine and loblolly pine. Equipment limitations and seedling mortality are management concerns.

This soil has low potential for most nonfarm uses. Flooding and wetness are the main limitations. They could be overcome by major flood control and drainage measures. Capability subclass Vw.

Se—Stilson loamy sand. This deep, moderately well drained, nearly level soil is on low uplands of the Coastal Plain. Slopes are smooth and convex. They range from 0 to 2 percent. Individual areas are 10 to 25 acres.

Typically, the surface layer is dark gray loamy sand about 7 inches thick. The subsurface layer, about 19 inches thick, is light yellowish brown loamy sand with yellow mottles. The subsoil is dominantly sandy clay loam that extends to a depth of 65 inches or more; it is yellow mottled with brown in the upper part, brownish yellow mottled with gray and red in the middle part, and light gray mottled with yellowish brown and red in the lower part. Plinthite is at a depth of about 31 inches. Plinthite content ranges from 5 to 10 percent.

Included with this soil in mapping are small areas of Dothan, Fuquay, and Leefield soils. Also included are Stilson soils that have a sand surface layer.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. The soil has good tilth. A perched water table is at a depth of 30 to 36 inches during late winter and early spring.

This soil has medium potential for row crops. Its potential is limited because of wetness. It has high potential for hay and pasture. Tile drainage can help lower the water table if a suitable outlet can be obtained.

This soil has medium potential for slash pine and loblolly pine. Equipment limitation is the main management concern.

This soil has medium potential for most nonfarm uses. Wetness and seepage are the main limitations. Capability subclass IIw.

SuC2—Sunsweet sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on short hillsides on the Coastal Plain uplands. Slopes are broken and eroded. Individual areas are 5 to 15 acres.

Typically, the surface layer is dark brown sandy loam about 3 inches thick. The subsoil is sandy clay and extends to a depth of 60 inches or more. It is yellowish red in the upper part, strong brown mottled with yellowish red and brownish yellow in the middle part, and reticulately mottled with white, strong brown, and red in the lower part. Plinthite is at a depth of about 15 inches. Plinthite content ranges from 5 to 10 percent. Ironstone nodules are in the surface layer and in the upper and middle parts of the subsoil.

Included with this soil in mapping are small areas of Nankin and Tifton soils. Also included are Sunsweet soils that have a loamy sand surface layer.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout. Permeability is moderately slow, and available water capacity is medium.

This soil has low potential for row crops. Its potential is limited because of the shallow, clayey root zone and because of slope. It has medium potential for hay and pasture. Tilth can be improved by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has medium potential for slash pine and loblolly pine. Equipment limitations and seedling mortality are management concerns.

This soil has medium potential for most nonfarm uses. Slow permeability, slope, and low strength are the primary limitations that are difficult to overcome for most uses. Capability subclass IVe.

TfA—Tifton loamy sand, 0 to 2 percent slopes. This deep, well drained, nearly level soil is on uplands on the Coastal Plain. Slopes are smooth. Individual areas are as large as 40 acres.

Typically, the surface layer is brown loamy sand about 8 inches thick. The subsoil is sandy clay loam that extends to a depth of 60 inches or more; it is yellowish brown in the upper part and yellowish brown mottled with red and yellow in the lower part. Plinthite is at a depth of 41 inches. Plinthite content ranges from 25 to 30 percent. Ironstone nodules are throughout the soil.

Included with this soil in mapping are areas of Clarendon, Dothan, Fuquay, and Sunsweet soils. Also included are Tifton soils that have a sand and sandy loam surface layer.

This soil is moderate in natural fertility and low in organic matter content. It is very strongly acid or strongly acid throughout. Permeability is moderate, and available water capacity is medium. The soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and easily penetrated by plant roots.

This soil has high potential for row crops, hay, and pasture; it is one of the most productive soils in the county. Good tilth is easily maintained by returning crop residue to the soil.

This soil has high potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has high potential for most nonfarm uses. The subsoil has slow permeability; this is a limitation for septic tank absorption fields but can be overcome by good design and construction. Capability class I.

TfB—Tifton loamy sand, 2 to 5 percent slopes. This deep, well drained, very gently sloping soil is on ridgetops and side slopes on the Coastal Plain uplands. Slopes are smooth and convex. Areas are as large as 80 to 90 acres.

Typically, the surface layer is brown loamy sand about 8 inches thick. The subsoil is sandy clay loam that extends to a depth of 60 inches or more; it is yellowish brown in the upper part and yellowish brown mottled with red and yellow in the lower part. Plinthite is at a depth of 41 inches. Plinthite content ranges from 25 to 30 percent. Ironstone nodules are throughout the soil.

Included with this soil in mapping are small areas of Clarendon, Dothan, Fuquay, and Sunsweet soils. Also included are Tifton soils that have a sand and sandy loam surface layer and soils that have a slightly reddish subsoil with a few mottles in the upper part.

This soil is moderate in natural fertility and low in organic matter content. It is very strongly acid or strongly acid throughout. Permeability is moderate, and available water capacity is medium. The soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and is easily penetrated by plant roots.

This soil has high potential for row crops, hay, and pasture (fig. 5). Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard because most of this soil is cultivated. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion.

This soil has high potential for slash pine and loblolly pine. There are no significant limitations for woodland use or management.

This soil has high potential for most nonfarm uses. The subsoil has slow permeability; this is a limitation for septic tank absorption fields but can be overcome by good design and construction. Capability subclass IIe.

TuB—Tifton-Urban land complex, 0 to 5 percent slopes. This complex consists of Tifton soils and Urban land that are so intermingled that they could not be separated at the scale selected for mapping. It is in heavily populated and industrial areas. Slopes are smooth.

Tifton loamy sand makes up about 50 to 60 percent of each mapped area. Typically, Tifton soils have a brown loamy sand surface layer about 8 inches thick. The subsoil is sandy clay loam that extends to a depth of 60 inches or more; it is yellowish brown in the upper part and yellowish brown mottled with red and yellow in the lower part. Plinthite is at a depth of 41 inches. Plinthite content ranges from 25 to 30 percent. Ironstone nodules are throughout the soil.

This soil is moderate in natural fertility and low in organic matter content. It is very strongly acid or strongly acid throughout. Permeability is moderate, and available water capacity is medium. The soil has good tilth and can be worked throughout a wide range of moisture conditions. The root zone is deep and is easily penetrated by plant roots.

Urban land makes up about 40 to 50 percent of each mapped area. The soils have been altered by grading, cutting, filling, shaping, and smoothing for community development. Most Urban land is used for private dwellings, industrial sites, streets and sidewalks, shopping centers, parking lots, airports, schools, and churches.

This complex has high potential for most nonfarm uses. The slow permeability is a limitation for septic tank absorption fields, but this can be overcome by good design and construction. Capability subclass IIe.

VaB—Valdosta sand, 0 to 5 percent slopes. This deep, well drained or excessively drained, nearly level to very gently sloping soil is on Coastal Plain uplands. Slopes are smooth. Individual areas are 25 to 150 acres.

Typically, the surface layer is dark grayish brown sand about 10 inches thick. Below this, to a depth of about 60 inches, it is mostly brown loamy sand. This is underlain by alternating layers of light yellowish brown sand and strong brown sandy loam that extend to a depth of about 100 inches.

Included with this soil in mapping are small areas of Chipley, Lakeland, and Lowndes soils. Also included are Valdosta soils that have a loamy sand and loamy fine sand surface layer.

This soil is low in natural fertility and organic matter content. It is very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is rapid, and available water capacity is low. The soil has good tilth. The root zone is deep and easily penetrated by plant roots.

This soil has medium potential for row crops, hay, and pasture. Its potential is limited because of low available water capacity. If irrigated, yields of tobacco and similar crops are high. Cover crops help to control erosion.

This soil has medium potential for slash pine or loblolly pine. Equipment limitations and seedling mortality are management concerns.

This soil has medium potential for most nonfarm uses. Seepage and sandy textures are the main limitations. Contamination of nearby water supplies is a hazard if this soil is used for sanitary facilities. Capability subclass IIIs.

WA—Wahee soils. This map unit consists of nearly level soils on stream terraces within the flood plains of the major streams. The soils are commonly inundated for brief periods in winter and early in spring. The map unit consists of Wahee soils and soils that are similar to Wahee soils; these soils are closely associated in an irregular pattern. Individual areas of these soils are large enough to map separately, but, because of present and predicted use, they were not separated in mapping. Most mapped areas contain Wahee soils and similar soils, but in a few areas one or the other is not present.

A typical area of this map unit is about 50 to 60 percent Wahee soils and 40 to 50 percent similar soils.

Typically, Wahee soils have a fine sandy loam surface layer about 9 inches thick. This layer is very dark gray in the upper part and grayish brown in the lower part. The subsoil extends to a depth of 62 inches or more. It is light olive brown sandy clay loam in the upper part; mottled brown, gray, and red sandy clay in the middle part; and gray sandy clay loam mottled with yellowish brown in the lower part.

Wahee soils are medium in natural fertility and low in organic matter content. They are very strongly acid or strongly acid throughout. Permebility is slow, and available water capacity is medium. A water table is between the surface and a depth of 12 inches during late winter and early spring.

This map unit has very low potential for farm and nonfarm uses. Flooding is the main limitation to use and management. Capability subclass IIIw.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture; for woodland; as sites for buildings, highways and other transportation systems; for sanitary facilities; for parks and other recreation facilities; and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates the presence of bedrock, wetness, or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. Pavements, sidewalks, campsites, playgrounds, lawns, and trees and shrubs are influenced by the nature of the soil.

Crops and pasture

The major management concerns in the use of the soils for crops and pasture are described in this section. In addition, the crops or pasture plants best suited to the soil, including some not commonly grown in the survey area, are discussed; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are presented for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil maps for detailed planning." Planners of management systems for individual fields or farms should also consider the detailed information given in the description of each soil.

More than 93,000 acres in the survey area was used for crops and pasture in 1967, according to the Conservation Needs Inventory. Of this total, 13,349 acres was used for permanent pasture; 49,989 acres was used for row crops (fig. 6), mainly corn; 5,200 acres was used for close-grown crops, mainly rye and oats; and the rest was idle cropland.

The soils in Lowndes County have the potential to produce more food. About 16,599 acres of potentially good cropland is currently used as woodland, and about 15,000 acres is used as pasture. In addition to the reserve productive capacity represented by this land, food production could also be increased considerably by extending the latest crop production technology to all existing cropland in the county. This soil survey can be helpful in facilitating the application of such technology.

Acreage in crops and pasture has gradually been decreasing as more and more land is used for urban development. In 1967 there was about 15,000 acres of urban and built up land in the county; this figure has been growing at the rate of about 500 acres per year. The use of this soil survey to help make land use decisions that will influence the future role of farming in the county is discussed in the section "General soil map for broad land use planning."

Soil erosion is the major concern on the cropland and pasture in Lowndes County. If slope is more than 2 percent, erosion is a hazard. Dothan, Fuquay, Nankin, Sunsweet, and Tifton soils, for example, have slopes ranging from 0 to 8 percent.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. This is especially damaging on soils with a clayey subsoil, such as Sunsweet and Nankin soils, and soils with a layer in or below the subsoil that limits the depth of the root zone. Second, soil erosion on farmland results in sedimentation. Control of erosion minimizes sedimentation and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping fields, preparing a good seedbed and tilling the soil are difficult on clayey or hardpan spots because the original, friable surface layer has eroded away. Such spots are common in areas of eroded Sunsweet soils.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps vegetative cover on the soil for extended periods can hold soil erosion losses to amounts that will not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land, provide nitrogen, and improve tilth for the following crop.

Dothan and Tifton soils are examples of soils requiring cropping systems that provide substantial vegetative cover to control erosion unless minimum tillage is practiced. Minimizing tillage and leaving crop residues on the surface help to increase infiltration and reduce the hazards of runoff and erosion. These practices can be adapted to most soils in the survey area. No-tillage for corn, which is used on an increasing acreage, is effective in reducing erosion on sloping land and can be adapted to most soils in the survey area.

Terraces and diversions reduce the length of slope and reduce runoff and erosion. They are most practical on deep, well drained soils that have regular slopes. Tifton and Dothan soils are examples of soils suitable for terraces. Nankin and Sunsweet soils are examples of soils less suitable for terracing and diversions because of complex slopes or the clayey subsoil, which would be exposed in terraces channels.

Contouring and contour stripcropping are widespread erosion control practices in the survey area. They are best adapted to soils with smooth, uniform slopes, including most areas of the sloping Tifton, Dothan, and Fuquay soils.

Soil blowing is a hazard in spring. It can damage soils in a few hours if winds are strong and the soils are dry and bare of vegetation or surface mulch. Maintaining vegetative cover, surface mulch, or rough surfaces minimizes soil blowing on these soils. Windbreaks or field borders of adapted plants, such as perennial grasses or rye, are effective in reducing soil blowing.

Information for the design of erosion control practices for each kind of soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Soil drainage is the major management need on about one-fifth of the acreage used for crops and pasture in the survey area. Some soils are naturally so wet that the production of crops common to the area is generally not feasible. These are the poorly drained and very poorly drained Grady, Olustee, Pelham, Bayboro, and Johnston soils.

Unless artificially drained, the somewhat poorly drained soils, such as Albany and Leefield soils, are so wet that crops are damaged during most years.

Chipley, Clarendon, and Stilson soils have good natural drainage most of the year, but they tend to dry out slowly after rains. Small areas of wetter soils along drainageways are commonly included in areas of the moderately well drained Chipley, Claredon, and Stilson soils. Artificial drainage is needed in these areas.

The design of both surface and subsurface drainage systems varies with the kind of soil. Drains have to be more closely spaced in slowly permeable soils than in more permeable soils. Care must be taken if tile is installed in Clarendon and Leefield soils. If tile is installed below the weakly cemented layer, water is somewhat restricted from entering the tile line and the system will not function properly.

Organic soils oxidize and subside when the pore space is filled with air; therefore, special drainage systems are needed to control the depth and the period of drainage. Information on drainage design for each kind of soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Soil fertility is naturally low in most soils of the survey area. All soils are naturally acid. The soils on flood plains, such as Ousley and Wahee soils, are strongly acid.

Many soils on uplands are naturally very strongly acid, and if they have never been limed, they require applications of ground limestone to raise the pH reaction rating sufficiently for good growth of crops. Available phosphorus and potash levels are naturally low in most of these soils. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the need of the crop, and on the expected level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and in the infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils used for crops in the survey area have a surface layer of gray loamy sand to sand that is low in content of organic matter. Generally the structure of such soils is weak, and intense rainfall causes a crust to form on the surface. The crust is hard when dry, and it is nearly impervious to water. Once the crust forms, it reduces infiltration and increases runoff. Regular additions of crop residues and other organic material can help to improve soil structure and to reduce crust formation.

Fall plowing is generally not a good practice on soils that have a loamy sand surface layer. Also, a small percentage of the cropland consists of sloping soils that are subject to damaging erosion if they are plowed in the fall.

Field crops suited to the soils and climate of the survey area are corn, tobacco, and, to an increasing extent, soybeans. Grain sorghum, peanuts, and similar crops are also grown. Tobacco is the main cash crop. Rye, oats, and ryegrass are the common close-growing crops.

Special crops grown in the survey area are vegetables, small fruits, tree fruits, and nursery plants. A small acreage throughout the county is used for melons, sweet corn, tomatoes, peppers, and other vegetables and small fruits. In addition, large areas can be adapted to other special crops such as blueberries, grapes, and many vegetables. Pecans are the most important tree fruits grown in the county.

When adequately drained, the muck soils in the county are well suited to mining of peat. Dasher muck makes up about 4,170 acres in the survey area.

Latest information and suggestions for growing special crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

Yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. Absence of an estimated yield indicates that the crop is not suited to or not commonly grown on the soil or that a given crop is not commonly irrigated.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 5.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

Accurate fertilizer recommendations for a particular soil and a particular crop can only be accomplished by soil testing. In the absence of soil tests, general fertilizer recommendations are available in "Fertilizer Recommendations for Field Crops," published by the Cooperative Extension Service, University of Georgia, College of Agriculture (*4*).

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

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not included because the acreage of these crops is small. The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information about the management concerns and productivity of the soils for these crops.

Capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops. The soils are classed according to their limitations when they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forest trees, or for engineering purposes.

In Lowndes County all kinds of soil are grouped at two levels: capability class and subclass. These levels are defined in the following paragraphs.

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

Class I soils have few limitations that restrict their use.

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

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

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

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and landforms have limitations that nearly preclude their use for commercial crop production.

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

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is indicated in table 6. All soils in the survey area except those named at a level higher than the series are included. Some of the soils that are well suited to crops and pasture may be in low-intensity use, for example, soils in capability classes I and II. Data in this table can be used to determine the farming potential of such soils.

The capability subclass is identified in the description of each soil mapping unit in the section "Soil maps for detailed planning."

Woodland management and productivity

W. P. THOMPSON, forester, Soil Conservation Service, helped to prepare this section.

This section contains information concerning the relationship between soils and trees. The woodland interpretations make this survey more useful to woodland owners and operators. The interpretations are useful in developing and carrying out plans for establishing and harvesting forest resources.

Virgin forests of yellow pine once covered Lowndes County. Extensive lumbering operations eliminated all of the original longleaf pine. Later, the production of turpentine from stands of southern yellow pine began. At one time, the largest producer of gum turpentine in the world operated a still at Valdosta. The shortage of labor, however, became so acute that in 1975 there was not a single gum producer in Lowndes County.

About 65 percent of the acreage of Lowndes County is in forest. The principal commercial tree species are slash pine, longleaf pine, loblolly pine, blackgum, and yellow-poplar.

The soils of Lowndes County have been rated on the basis of their performance when used to produce trees. Ratings are based on pertinent research, measurement by foresters and soil scientists, and the experience of forest managers.

Table 7 contains information useful to woodland owners or forest managers planning use of soils for wood crops. Map unit symbols for the soils suitable for wood crops are listed alphabetically by soil name, and the ordination symbol for each soil is given. All soils bearing the same ordination symbol require the same general kinds of woodland management and have about the same potential productivity or site index (height of dominant and codominant trees at a given age).

The first part of the symbol, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *w* indicates excessive water in or on the soil; *c*, clay in the upper part of the soil; *s*, sandy texture; and *o*, no significant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is the order in which the letters are listed above—w, c, and s.

In table 7 the soils are also rated for a number of factors to be considered in management. The ratings of *slight*, *moderate*, and *severe* are used to indicate the degree of major soil limitations.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *potential productivity* of merchantable or *important trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Important trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suitable for commercial wood production and that are suited to the soils.

Engineering

HUGH PARK, engineer, Soil Conservation Service, helped to prepare this section.

This section provides information about the use of soils for building sites, sanitary facilities, construction material, and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers and ranchers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock that is within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational uses; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.

The information is presented mainly in tables. Table 8 shows, for each kind of soil, the degree and kind of limitations for building site development; table 9, for sanitary facilities; and table 11, for water management. Table 10 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 8. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 8 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, potential frost action, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Depth to bedrock, slope, and large stones in or on the soil are also important considerations in the choice of sites for these structures and were considered in determining the ratings. Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 8 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, depth to hard rock or very compact layers, and content of large stones affect stability and ease of excavation.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 9 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and, if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good*, *fair*, or *poor*, which, respectively, mean about the same as the terms *slight*, *moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Stones, boulders, and shallowness to bedrock interfere with installation. Excessive slope can cause lateral seepage and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

In some soils, loose sand and gravel or fractured bedrock is less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes (fig. 7). Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Soils that are very high in content of organic matter and those that have cobbles, stones, or boulders are not suitable. Unless the soil has very slow permeability, contamination of ground water is a hazard where the seasonal high water table is above the level of the lagoon floor. In soils where the water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is solid waste (refuse) and soil material that is placed in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation, because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 9 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

Where it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 10 by ratings of good, fair, or poor. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction materials. Each soil is evaluated to the depth observed, generally about 6 feet.

Roadfill is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 14 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential, low potential frost action, and few cobbles and stones. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, wetness, or many stones. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor.*

Sand and *gravel* are used in great quantities in many kinds of construction. The ratings in table 10 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Coarse fragments of soft bedrock material, such as shale and siltstone, are not considered to be sand and gravel. Fine-grained soils are not suitable sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 14.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, slope, and amount of stones. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are free of stones and cobbles, are low in content of gravel, and have gentle slopes. They are low in soluble salts that can limit or prevent plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick or soils that have appreciable amounts of gravel, stones, or soluble salt.

Soils rated *poor* are very sandy soils and very firm clayey soils; soils with suitable layers less than 8 inches thick; soils having large amounts of gravel, stones, or soluble salt; steep soils; and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of moisture and nutrients for plant growth are greatly increased by organic matter.

Water management

Many soil properties and site features that affect water management practices have been identified in this soil survey. In table 11 the degree of soil limitation and soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

Soil and site limitations are expressed as slight, moderate, and severe. *Slight* means that the soil properties and site features are generally favorable for the specified use and that any limitation is minor and easily overcome. *Moderate* means that some soil properties or site features are unfavorable for the specified use but can be overcome or modified by special planning and design. *Severe* means that the soil properties and site features are so unfavorable and so difficult to correct or overcome that major soil reclamation, special design, or intensive maintenance is required.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Large stones and organic matter in a soil downgrade the suitability of a soil for use in embankments, dikes, and levees.

Drainage of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; salinity and alkalinity; and availability of outlets for drainage.

Irrigation is affected by such features as slope, susceptibility to flooding, hazards of water erosion and soil blowing, texture, presence of salts and alkali, depth of root zone, rate of water intake at the surface, permeability of the soil below the surface layer, available water capacity, need for drainage, and depth to the water table (fig. 8).

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to intercept runoff. They allow water to soak into the soil or flow slowly to an outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock, hardpan, or other unfavorable material; large stones; permeability; ease of establishing vegetation; and resistance to water erosion, soil blowing, soil slipping, and piping.

Grassed waterways are constructed to channel runoff to outlets at a nonerosive velocity. Features that affect the use of soils for waterways are slope, permeability, erodibility, wetness, and suitability for permanent vegetation.

Recreation

Recreation, including fishing and boating, is available on many farm ponds and natural lakes and on the Alapaha, Withlacoochee, and Little Rivers in Lowndes County. Canoe trails are mapped on the Withlacoochee and Alapaha Rivers. More than 90 natural lakes are in the southern part of the county. They range in size from 1 acre to 800 acres. Two 18-hole golf courses and many tennis courts are available. Three public campgrounds are adjacent to Interstate 75 in the county.

The soils of the survey area are rated in table 12 according to limitations that affect their suitability for recreation uses. The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewerlines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degree, for recreation use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity, and frequency of flooding is essential in planning recreation facilities.

The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that the limitations are minor and easily overcome. *Moderate* means that the limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 12 can be supplemented by information in other parts of this survey. Especially helpful are interpretations for septic tank absorption fields, given in table 9, and interpretations for dwellings without basements and for local roads and streets, given in table 8.

Camp areas require such site preparation as shaping and leveling for tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that will increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones or boulders, is firm after rains, and is not dusty when dry. If shaping is required to obtain a uniform grade, the depth of the soil over bedrock or hardpan should be enough to allow necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They should have moderate slopes and have few or no stones or boulders on the surface.

Wildlife habitat

JESSE MERCER, JR., biologist, Soil Conservation Service, helped to prepare this section.

The soils of Lowndes County produce food and cover for many kinds of wildlife. Bobwhite are numerous in the large cultivated areas. Among the animals common throughout the county are rabbits, squirrels, fox, opossums, raccoons, skunks, and many kinds of nongame birds. Deer find suitable habitat in wooded areas near the Alapaha, Little, and Withlacoochee Rivers and in other large wooded tracts, especially in the "flatwoods" section of the county. Wild ducks, mink, and otter live throughout the county but are most plentiful along the major rivers and near Grand Bay and Mud Swamp. Alligators live along the major streams, Grand Bay, Mud Swamp, and the many natural lakes in the southern part of the county.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water. If any one of these elements is missing, is inadequate, or is inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by helping the natural establishment of desirable plants.

In table 13, the soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area. This information can be used in planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; selecting areas that are suitable for wildlife; selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of wildlife are very severe, and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

The elements of wildlife habitat are briefly described in the following paragraphs.

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of native plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are commercially available and suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, and cordgrass and rushes, sedges, and reeds.

Shallow water areas are bodies of water that have an average depth of less than 5 feet and that are useful to wildlife. They can be naturally wet areas, or they can be created by dams or levees or by water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The kinds of wildlife habitat are briefly described in the following paragraphs.

Openland habitat consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kinds of wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail rabbit, and red fox.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Soil properties

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil material; the texture, or amount of clay, silt, sand, and gravel or other coarse fragments; the structure, or the natural pattern of cracks and pores in the undisturbed soil; and the consistence of the soil material in place under the existing soil moisture conditions. They record the depth of plant roots, determine the pH or reaction of the soil, and identify any free carbonates.

Samples of soil material are analyzed in the laboratory to verify the field estimates of soil properties and to determine all major properties of key soils, especially properties that cannot be estimated accurately by field observation. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for many soil series not tested are available from nearby survey areas.

The available field and laboratory data are summarized in tables. The tables give the estimated range of engineering properties, the engineering classifications, and the physical and chemical properties of each major horizon of each soil in the survey area. They also present data about pertinent soil and water features, engineering test data, and data obtained from physical and chemical laboratory analyses of soils.

Engineering properties

Table 14 gives estimates of engineering properties and classifications for the major horizons of each soil in the survey area.

Most soils have, within the upper 5 or 6 feet, horizons of contrasting properties. Table 14 gives information for each of these contrasting horizons in a typical profile. *Depth* to the upper and lower boundaries of each horizon is indicated. More information about the range in depth and about other properties in each horizon is given for each soil series in the section "Soil series and morphology."

Texture is described in table 14 in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains gravel or other particles coarser than sand, an appropriate modifier is added, for example, "gravelly loam." Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (Unified) (*3*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*2*).

The *Unified* system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection.

When laboratory data are available, the A-1, A-2, and A-7 groups are further classified as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As an additional refinement, the desirability of soils as subgrade material can be indicated by a group index number. These numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested in the survey area, with group index numbers in parentheses, is given in table 17. The estimated classification, without group index numbers, is given in table 14.

Also in table 14 the percentage, by weight, of rock fragments more than 3 inches in diameter is estimated for each major horizon. These estimates are determined mainly by observing volume percentage in the field and then converting that, by formula, to weight percentage.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in both the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and plasticity index are estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

In some surveys, the estimates are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterburg limits extend a marginal amount across classification boundaries (1 or 2 percent), the classification in the marginal zone is omitted.

Physical and chemical properties

Table 15 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste disposal systems, and in many other aspects of land use and management.

Available water capacity is rated on the basis of soil characteristics that influence the ability of the soil to hold water and make it available to plants. Important characteristics are content of organic matter, soil texture, and soil structure. Shallow-rooted plants are not likely to use the available water from the deeper soil horizons. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design of irrigation systems.

Soil reaction is expressed as a range in pH values. The range in pH of each major horizon is based on many field checks. For many soils, the values have been verified by laboratory analyses. Soil reaction is important in selecting the crops, ornamental plants, or other plants to be grown; in evaluating soil amendments for fertility and stabilization; and in evaluating the corrosivity of soils.

Salinity is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of the nonirrigated soils. The salinity of individual irrigated fields is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of individual fields can differ greatly from the value given in table 15. Salinity affects the suitability of a soil for crop production, its stability when used as a construction material, and its potential to corrode metal and concrete.

Shrink-swell potential depends mainly on the amount and kind of clay in the soil. Laboratory measurements of the swelling of undisturbed clods were made for many soils. For others the swelling was estimated on the basis of the kind and amount of clay in the soil and on measurements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on the sulfate content, texture, and acidity of the soil. Protective measures for steel or more resistant concrete help to avoid or minimize damage resulting from the corrosion. Uncoated steel intersecting soil boundaries or soil horizons is more susceptible to corrosion than an installation that is entirely within one kind of soil or within one soil horizon.

Erosion factors are used to predict the erodibility of a soil and its tolerance to erosion in relation to specific kinds of land use and treatment. The soil erodibility factor (K) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest K values are the most erodible. K values range from 0.10 to 0.64. To estimate annual soil loss per acre, the K value of a soil is modified by factors representing plant cover, grade and length of slope, management practices, and climate. The soil-loss tolerance factor (T) is the maximum rate of soil erosion, whether from rainfall or soil blowing, that can occur without reducing crop production or environmental quality. The rate is expressed in tons of soil loss per acre per year.

Soil and water features

Table 16 contains information helpful in planning land uses and engineering projects that are likely to be affected by soil and water features.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are placed in one of four groups on the basis of the intake of water after the soils have been wetted and have received precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils that have a layer that impedes the downward movement of water or soils that have moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clay soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding is the temporary covering of soil with water from overflowing streams, with runoff from adjacent slopes, and by tides. Water standing for short periods after rains or after snow melts is not considered flooding, nor is water in swamps and marshes. Flooding is rated in general terms that describe the frequency and duration of flooding and the time of year when flooding is most likely. The ratings are based on evidence in the soil profile of the effects of flooding, namely thin strata of gravel, sand, silt, or, in places, clay deposited by floodwater; irregular decrease in organic-matter content with increasing depth; and absence of distinctive soil horizons that form in soils of the area that are not subject to flooding. The ratings are also based on local information about floodwater levels in the area and the extent of flooding and on information that relates the position of each soil on the landscape to historic floods.

The generalized description of flood hazards is of value in land-use planning and provides a valid basis for land-use restrictions. The soil data are less specific, however, than those provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

The *High water table* is the highest level of a saturated zone more than 6 inches thick for a continuous period of more than 2 weeks during most years. The depth to a seasonal high water table applies to undrained soils. Estimates are based mainly on the relationship between grayish colors or mottles in the soil and the depth to free water observed in many borings made during the course of the soil survey. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table, that is, perched, artesian, or apparent, or swamp; and the months of the year that the water table commonly is high. Only saturated zones above a depth of 5 or 6 feet are indicated.

Information about the seasonal high water table helps in assessing the need for specially designed foundations, the need for specific kinds of drainage systems, and the need for footing drains to insure dry basements. Such information is also needed to decide whether or not construction of basements is feasible and to determine how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

All soils in the survey area are more than 60 inches deep over bedrock.

Engineering test data

Table 17 gives the results of tests on selected soil samples. These tests were made by the Georgia Department of Transportation according to standard procedures of the American Association of State Highway and Transportation Officials (*2*) unless noted. The profiles are typical, and the data probably do not show the maximum variation in the horizons of each soil series.

All of the samples were taken at a depth of less than 10 feet. The test data, therefore, may not be adequate for estimating the characteristics of soil material where deep cuts are required in rolling or hilly terrain. The samples were tested for moisture-density relationships, volume change, grain-size distribution, liquid limit, and plasticity index.

In the moisture-density test, soil material is compacted several times in a mold under a constant compaction effort, each time at a successively higher moisture content. The density, or unit weight, of the soil material increases until the optimum moisture content is reached. From that point, the density decreases as moisture content increases. The highest density obtained in the compaction test is the maximum dry density. Data showing moisture density are important in earthwork because, generally, optimum stability is obtained if the soil is compacted to about the maximum dry density when it is at approximately the optimum moisture content.

The data on volume change indicate the amount of shrinking and swelling measured on samples prepared at optimum moisture content and then subjected to drying and wetting. The total change that can occur in a specified soil is the sum of the values given for shrinking and swelling (*1*).

The test for liquid limit and plastic limit measures the effect of water on the consistence of the soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from a semisolid state to a plastic state. As the moisture content is further increased, the material changes from a plastic state to a liquid state. The plastic limit is the moisture content at which the 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.

Soil series and morphology

In this section, each soil series recognized in the survey area is described in detail. The descriptions are arranged in alphabetic order by series name.

Characteristics of the soil and the material in which it formed are discussed for each series. The soil is then compared to similar soils and to nearby soils of other series. Then a pedon, a small three-dimensional area of soil that is typical of the soil series in the survey area, is described. The detailed descriptions of each soil horizon follow standards in the Soil Survey Manual (*8*). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is the range of important characteristics of the soil series in this survey area. Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

Albany series

The Albany series consists of deep, somewhat poorly drained soils that are rapidly permeable in the thick surface layer and moderately permeable in the subsoil. These soils formed in thick beds of sandy and loamy sediments and are on low flats. Local relief commonly ranges from 135 to 250 feet. Slopes range from 0 to 2 percent.

Typical pedon of Albany sand, 0 to 2 percent slopes, in a field northwest of Boring Mill Pond; 1.25 miles west of State Road 94, 2 miles northwest of Mount Pleasant Church, and 50 yards north of county dirt road:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) sand; few fine faint dark brown mottles; weak fine granular structure; loose; many fine roots; very strongly acid; abrupt smooth boundary.

A21—8 to 14 inches; light brownish gray (2.5Y 6/2) loamy sand; few fine yellow mottles; weak fine granular structure; very friable; common fine roots; very strongly acid; gradual wavy boundary.

A22—14 to 29 inches; yellow (2.5Y 8/6) loamy sand; common medium distinct brownish yellow (10YR 6/6) mottles; weak fine granular structure; very friable; few flecks of charcoal; very strongly acid; gradual wavy boundary.

A23—29 to 50 inches; pale yellow (2.5Y 7/4) loamy sand; common medium distinct brownish yellow (10YR 6/6) and light gray (5Y 7/2) mottles; weak fine granular structure; very friable; very strongly acid; gradual wavy boundary.

A24—50 to 55 inches; yellow (2.5Y 8/6) loamy sand; common medium distinct brownish yellow (10YR 6/8) and light gray (5Y 7/1) mottles; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.

B2t—55 to 65 inches; yellowish brown (10YR 5/8) sandy loam; common medium distinct light gray (5Y 7/2) and light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

The solum ranges from 60 to 75 inches in thickness. All horizons are very strongly acid or strongly acid except for the A horizon in limed areas.

The Ap horizon has hue of 10YR, 5Y, or 2.5Y; value of 3 to 6; and chroma of 1 or 2. The B horizon is sandy loam or sandy clay loam. Hue is 10YR or 2.5Y, value is 5 to 7, and chroma is 1 to 8.

Albany soils are similar to Chipley, Lakeland, and Leefield soils, but Chipley and Lakeland soils do not have a Bt horizon. Albany soils have a thicker A horizon than Leefield soils. Albany soils are on a lower landscape position and are not so well drained as Lakeland soils.

Bayboro series

The Bayboro series consists of deep, very poorly drained, slowly permeable soils that formed in clayey fluvial or marine sediments. These soils are in depressions. Local relief commonly ranges from 135 to 235 feet. Slopes range from 0 to 2 percent but are mostly less than 1 percent.

Typical pedon of Bayboro loam in Becky Bay; 1 mile southeast of Georgia Highway 31 and U.S. Highway 221; 1 mile southeast of Pleasant Way Church; and 150 yards into the bay:

A1—1 to 11 inches; black (10YR 2/1) loam; weak fine granular structure; very friable; many fine roots; high in organic matter content (5 to 10 percent); very strongly acid; clear smooth boundary.

B1g—11 to 16 inches; dark grayish brown (10YR 4/2) clay loam with splotches of gray sand; moderate medium subangular blocky structure; firm; common fine and medium roots; very strongly acid; gradual wavy boundary.

B2tg—16 to 36 inches; dark grayish brown (10YR 4/2) clay; moderate medium subangular blocky structure; very hard; very firm; very plastic, sticky; few fine and medium roots; thin clay films on vertical ped faces; very strongly acid; gradual wavy boundary.

B22tg—36 to 65 inches; gray (10YR 5/1) clay; common medium and fine strong brown (75YR 5/6) and yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; very firm; very plastic, sticky; patchy clay films on faces of peds; few fine roots and root channels; very strongly acid.

The solum ranges from 60 to 70 inches in thickness. All horizons are very strongly acid to strongly acid.

The A horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2. The B1 horizon is loam, sandy clay loam, or clay loam. Hue is 10YR or 2.5Y, value is 3 or 4, and chroma is 1 or 2. The B3t horizon is clay, clay loam, or sandy clay. Hue is 10YR, 2.5Y, or 5Y; value is 4 to 7; and chroma is 1 or 2.

Bayboro soils are similar to Pelham soils. Pelham soils have less clay in the Bt horizon and a thinner black surface layer than Bayboro soils.

Chipley series

The Chipley series consists of deep, moderately well drained, rapidly permeable soils that formed in thick, sandy marine deposits. The Chipley soils are on low flats of the lower Coastal Plain. Local relief commonly ranges from 150 to 225 feet. Slopes range from 0 to 2 percent.

Typical pedon of Chipley sand, 0 to 2 percent slopes, in a field, 0.5 mile west of the Echols-Lowndes County line on State Route 376; 100 yards north of road:

A11—0 to 6 inches; very dark gray (10YR 3/1) sand; single grained; loose; many fine roots; very strongly acid; gradual smooth boundary.

C1—6 to 18 inches; light yellowish brown (10YR 6/4) sand; few fine faint light gray mottles; single grained; loose; common fine roots; very strongly acid; gradual smooth boundary.

C2—18 to 26 inches; pale brown (10YR 6/3) sand; common fine faint light gray mottles; single grained; loose; few fine roots; very strongly acid; gradual irregular boundary.

C3—26 to 42 inches; brownish yellow (10YR 6/6) sand; common medium distinct olive yellow (2.5Y 6/6) and light gray (2.5Y 7/2) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

C4—42 to 58 inches; brownish yellow (10YR 6/6) sand; common medium distinct light gray (10YR 7/2) and strong brown (7.5YR 5/6) mottles; single grained; loose; strong brown mottles contain more clay than matrix; very strongly acid; gradual wavy boundary.

C5—58 to 80 inches; light gray (10YR 7/2) sand; common medium distinct pale brown (10YR 6/3) and strong brown (7.5YR 5/6) mottles; single grained; loose; very strongly acid.

Sand or fine sand extends to a depth of 80 inches or more. The soil ranges from very strongly acid through medium acid in all horizons.

The A1 or Ap horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2. The C horizon has hue of 10YR, 2.5Y, 7.5YR, or 5Y; value of 4 to 7; and chroma of 1 to 8.

Chipley soils are similar to Albany, Lakeland, and Valdosta soils. Chipley soils do not have the sandy loam or sandy clay loam Bt horizon at a depth of 40 to 60 inches common to Albany soils. Chipley soils are not so well drained as Lakeland soils. Chipley soils do not have the small, phosphatic pebbles present in Valdosta soils.

Clarendon series

The Clarendon series consists of moderately deep, moderately well drained soils. These soils have moderate permeability in the upper part of the profile and moderately slow permeability in the lower part. They formed in unconsolidated marine sediments that are dominantly loamy. The Clarendon soils are on low uplands of the Coastal Plain. Local relief ranges from 150 to 225 feet. Slopes range from 0 to 3 percent but are dominantly less than 2 percent.

Typical pedon of Clarendon loamy sand, 0.25 mile southeast of U.S. Highway 221; 0.5 mile east of Georgia Power Substation; and 1.75 miles southeast of Knights Academy Road:

Ap—0 to 8 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; few nodules of ironstone; common fine roots; very strongly acid; clear smooth boundary.

B1—8 to 16 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine granular structure; very friable; few nodules of ironstone; common fine roots; very strongly acid; gradual wavy boundary.

B21t—16 to 27 inches; brownish yellow (10YR 6/6) sandy clay loam; moderate medium subangular blocky structure; clay films on some ped surfaces; very strongly acid; gradual wavy boundary.

B22tcn—27 to 32 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct mottles of strong brown (7.5YR 5/6), red (2.5YR 4/8), and light gray (10YR 7/2); moderate medium subangular blocky structure; friable; 10 percent nodules of ironstone; 3 percent plinthite; clay films on some ped surfaces; very strongly acid; gradual wavy boundary.

B23t—32 to 40 inches; coarsely mottled brownish yellow (10YR 6/6), strong brown (7.5YR 5/6), light gray (10YR 7/1), and red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; firm; brittle; few nodules of ironstone; 8 percent plinthite; very strongly acid; gradual wavy boundary.

B24t—40 to 61 inches; coarsely mottled light yellowish brown (2.5Y 6/4), strong brown (7.5YR 5/6), red (2.5YR 4/8), and light gray (10YR 7/1) sandy clay loam; moderate medium subangular blocky structure; firm; brittle; 5 percent plinthite; few nodules of ironstone; very strongly acid; gradual wavy boundary.

B3—61 to 65 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; common medium distinct mottles of light gray (10YR 7/1), strong brown (7.5YR 5/6), and red (2.5YR 4/8); moderate medium subangular blocky structure; friable; 5 percent plinthite; few nodules of ironstone; very strongly acid.

The solum ranges from 60 to more than 70 inches in thickness. It is strongly or very strongly acid in all horizons.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 7, and chroma of 1 to 4. The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4, 6, or 8.

Clarendon soils are similar to Leefield and Stilson soils, but they do not have the thick surface layer characteristic of these soils.

Dasher series

The Dasher series consists of deep, very poorly drained, organic soils that have moderately rapid permeability. These soils formed in beds of hydrophytic plant remains. Dasher soils are in marshes, swamps, and poorly defined drainageways. Local relief commonly ranges from 140 to 190 feet. Slopes are less than 1 percent.

Typical pedon of Dasher muck in Lanes Pond, about 1.9 miles northwest of Clyatteville, Georgia:

Oe1—0 to 8 inches; black (5YR 2/1) unrubbed and rubbed partially decomposed organic material; about 36 percent fiber, 20 percent rubbed; weak medium granular structure; slightly sticky; estimated 2 percent mineral material; sodium pyrophosphate extract color is light yellowish brown (10YR 6/4); extremely acid; abrupt wavy boundary.

Oe2—8 to 20 inches; dark reddish brown (5YR 2/2) rubbed and unrubbed partially decomposed organic material; about 36 percent fiber, 20 percent rubbed; massive; very friable; estimated 2 to 5 percent mineral material; sodium pyrophosphate extract color is very pale brown (10YR 7/4); extremely acid; clear wavy boundary.

Oe3—20 to 40 inches; dark reddish brown (5YR 3/3) rubbed and unrubbed partially decomposed organic material; about 40 percent fiber, 25 percent rubbed; massive; very friable; estimated 2 to 5 percent mineral material; sodium pyrophosphate extract color is very pale brown (10YR 7/3); extremely acid; clear wavy boundary.

Oe4—40 to 75 inches; dark brown (7.5YR 3/2) rubbed and unrubbed partially decomposed organic material; about 55 percent fiber, 30 percent rubbed; massive; very friable; estimated 2 to 5 percent mineral material; sodium pyrophosphate extract color is white (10YR 8/1); extremely acid.

Thickness of the organic material is dominantly 51 to 75 inches but ranges to 180 inches.

The Oe1 horizon has hue of 5YR or 10YR, value of 2 or 3, and chroma of 1 to 3. The Oe2, Oe3, and Oe4 horizons have hue of 5YR to 10YR and value and chroma of 2 or 3.

Dasher soils are associated on the landscape with Albany, Bayboro, Chipley, and Pelham soils, which formed in mineral material. In addition, all these soils except Bayboro soils are better drained than Dasher soils.

Dothan series

The Dothan series consists of deep, well drained soils that have moderate permeability in the upper part of the subsoil and moderately slow permeability in the lower part. These soils formed in marine deposits that are dominantly loamy. Dothan soils are on nearly level and gently sloping uplands of the Coastal Plain. Local relief commonly ranges from 150 to 225 feet. Slopes range from 1 to 5 percent.

Typical pedon of Dothan loamy sand, 1 to 5 percent slopes, 1.5 miles northwest of Rocky Ford Road; 0.5 mile southwest of Lake Virginia in Kinderlou Forest:

A1—0 to 9 inches; grayish brown (10YR 5/2) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

B1—9 to 18 inches; brown (10YR 5/3) sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; gradual smooth boundary.

B21t—18 to 47 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; clay films on some surfaces of peds; few nodules of ironstone; 4 percent plinthite; strongly acid; gradual smooth boundary.

B22t—47 to 65 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; clay films on some surfaces of peds; 10 percent plinthite; strongly acid.

The solum ranges from 60 to more than 75 inches in thickness. Depth to horizons that contain more than 5 percent plinthite ranges from 30 to 50 inches. Few to no nodules of ironstone are in the A horizon and in the upper part of the B horizon. The profile is strongly acid or very strongly acid in all horizons unless the soil has been limed.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 2 to 4. The B horizon is sandy clay loam or sandy loam. It has hue of 10YR, 2.5Y, or 7.5YR; value of 5 to 7; and chroma of 4, 6, or 8.

Dothan soils are similar to Fuquay and Tifton soils. Dothan soils have a thinner A horizon than Fuquay soils and fewer nodules of ironstone throughout than Tifton soils.

Fuquay series

The Fuquay series consists of deep, well drained soils. These soils have moderate permeability in the upper part of the subsoil and slow permeability in the lower part. They formed in beds of sandy and loamy sediments on Coastal Plain uplands. Fuquay soils are on ridgetops and gently sloping hillsides. Local relief commonly ranges from 150 to 225 feet. Slopes range from 0 to 5 percent.

Typical pedon of Fuquay loamy sand, 0 to 5 percent slopes, on the west side of a dirt road and 150 yards into field; 1.0 mile east of Georgia Highway 31, 1.25 miles northwest of Bear Garden Swamp, 0.75 mile northwest of Jones Cemetery, and 1.75 miles northwest of Peyton Church:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

A2—7 to 24 inches; light yellowish brown (2.5Y 6/4) loamy sand; few fine faint flecks of light gray; weak fine granular structure; very friable; very strongly acid; gradual wavy boundary.

B1—24 to 30 inches; brownish yellow (10YR 6/6) sandy loam; weak medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

B21t—30 to 46 inches; brownish yellow (10YR 6/6) sandy clay loam; moderate medium subangular blocky structure; friable; few clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—46 to 60 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct yellowish red (5YR 5/8) and few fine distinct light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; friable; few clay films on faces of peds; 10 to 15 percent plinthite; very strongly acid.

The solum ranges from 60 to more than 70 inches in thickness. Depth to plinthite ranges from 45 to 60 inches. The profile is very strongly acid or strongly acid throughout except for the A horizon in limed areas.

The Ap horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. The Bt horizon has hue of 7.5YR, 2.5Y, or 10YR; value of 4 to 7; and chroma of 2, 4, 6, or 8.

Fuquay soils are similar to Dothan, Lakeland, Nankin, and Stilson soils. They have a thicker A horizon than Nankin or Dothan soils, and they have a B horizon, which is not common in Lakeland soils. Fuquay soils are better drained than Stilson soils.

Grady series

The Grady series consists of poorly drained, slowly permeable soils that formed in clayey marine sediments. These soils are in oval depressions. Local relief commonly ranges from 150 to 225 feet. Slopes range from 0 to 2 percent but are mostly less than 1 percent.

Typical pedon of Grady sandy loam in a depression; 100 yards south of the railroad overpass on old Quitman Highway; 1.5 miles southwest of Kinderlou; and 100 yards south of paved road:

A1—0 to 6 inches; dark gray (10YR 4/1) sandy loam; weak fine granular structure; very friable; many fine roots; very strongly acid; gradual smooth boundary.

B1—6 to 10 inches; grayish brown (2.5Y 5/2) sandy clay loam; weak medium subangular blocky structure; friable; many fine roots; common root channels; very strongly acid; abrupt wavy boundary.

B21tg—10 to 13 inches; dark gray (N 4/0) sandy clay; moderate medium subangular blocky structure; firm; common fine roots; very strongly acid; abrupt smooth boundary.

B22tg—13 to 35 inches; gray (10YR 6/1) clay; common medium distinct mottles of brown (10YR 5/3); moderate medium subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

B23tg—35 to 65 inches; gray (5Y 6/1) clay; many medium distinct mottles of yellowish brown (10YR 5/6) and light yellowish brown (10YR 6/4); moderate medium subangular blocky structure; firm; very strongly acid.

The solum ranges from 60 to more than 70 inches in thickness. It is very strongly acid or strongly acid throughout.

The A horizon has hue of 10YR, 5Y, or 2.5Y; value of 2 to 7; and chroma of 1 or 2; or it is neutral. The Bt horizon is sandy clay or clay. It has hue of 10YR or 5Y, value of 4 to 7, and chroma of 0 to 2; or it is neutral.

Grady soils are similar to Bayboro and Pelham soils. They have a thinner and grayer A horizon and are not so poorly drained as Bayboro soils. Grady soils have a thinner A horizon and a more clayey B horizon than Pelham soils.

Johnston series

The Johnston series consists of deep, very poorly drained soils. These soils have moderately rapid permeability in the thick surface layer and rapid permeability in the underlying material. They formed in loamy stratified fluvial or marine sediments. Johnston soils are on flood plains of the major creeks. Local relief commonly ranges from 86 to 150 feet. Slopes range from 0 to 2 percent, but most slopes are less than 1 percent.

Typical pedon of Johnston loam in a transect 300 feet west of Franks Creek, north of McDonald Road:

A11—0 to 12 inches; very dark gray (10YR 3/1) loam; weak fine granular structure; very friable; white (10YR 8/1) sand strata; very strongly acid; abrupt smooth boundary.

A12—12 to 30 inches; very dark gray (10YR 3/1) sandy loam; weak fine granular structure; very friable; white (10YR 5/1) sand strata; very strongly acid; abrupt smooth boundary.

C1—30 to 50 inches; dark gray (10YR 4/1) sandy loam; weak fine granular structure; very friable; very strongly acid; abrupt smooth boundary.

C2—50 to 65 inches; light brownish gray (10YR 6/2) sand; structureless; loose; very strongly acid.

Organic matter content of the A horizon is 8 to 20 percent. Some pedons have a few inches of recent alluvial sediments on the A1 horizon. The profile is very strongly acid or strongly acid throughout.

The A horizon has hue of 10YR or 5Y, value of 2 or 3, and chroma of 0 to 2; or it is neutral. The C horizon has hue of 10YR, 5Y, or 2.5Y; value of 4 to 6; and chroma of 1 or 2.

Johnston soils are similar to Bayboro and Pelham soils. Bayboro and Pelham soils do not have the thick black surface horizon and the stratified layers common in Johnston soils.

Lakeland series

The Lakeland series consists of deep, excessively drained, very rapidly permeable soils that formed in sandy sediments. Lakeland soils are on ridgetops and hillsides. Local relief commonly ranges from 150 to 225 feet. Slope ranges from 0 to 8 percent.

Typical pedon of Lakeland sand, 0 to 8 percent slopes, 1 mile west of the intersection of Interstate Highway 75 and North Valdosta Road, 1 mile northwest of Valdosta Vocational Technical School, and 1 mile northwest of Junction of Little River and Franks Creek:

A11—0 to 3 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; loose; many fine roots; strongly acid; clear wavy boundary.

A12—3 to 6 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; loose; many fine roots; few clean sand grains; strongly acid; clear wavy boundary.

C1—6 to 24 inches; pale yellow (2.5Y 7/4) sand; single grained; loose; few clean sand grains; strongly acid; gradual wavy boundary.

C2—24 to 46 inches; pale yellow (2.5Y 7/4) sand; few fine faint mottles of brownish yellow and yellowish brown; single grained; loose; strongly acid; few clean sand grains; gradual wavy boundary.

C3—46 to 80 inches; yellow (10YR 7/6) sand; common medium distinct mottles of strong brown (7.5YR 5/8); single grained; loose; sand grains coated; strongly acid.

Thickness of the sand exceeds 80 inches. The profile is very strongly acid through medium acid throughout.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 to 3. The C horizon has hue of 10YR, 2.5Y, 7.5YR, or 5YR; value of 5 to 7; and chroma of 3, 4, 6, or 8.

Lakeland soils are similar to Chipley and Valdosta soils. They are better drained than Chipley soils, and they do not have the phosphatic nodules common in Valdosta soils.

Leefield series

The Leefield series consists of somewhat poorly drained soils. These soils have moderate permeability in the upper part of the subsoil and moderately slow permeability in the lower part. They formed in thick beds of loamy and sandy marine deposits. Leefield soils are on low uplands. Local relief commonly ranges from 150 to 225 feet. Slopes range from 0 to 2 percent.

Typical pedon of Leefield loamy sand in a cultivated field; 1.5 miles north of Lake George, 1.5 miles north of the Southern Railroad, 3 miles southwest of Delmar, 2.25 miles southwest of Indianola along county dirt road, and 100 yards southeast:

Ap—0 to 8 inches; very dark gray (10YR 3/1) loamy sand; few fine faint light gray mottles; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

A2—8 to 32 inches; light gray (2.5Y 7/2) loamy sand; few fine faint brownish yellow mottles; few fine roots in upper part; weak fine granular structure; very friable; very strongly acid; gradual wavy boundary.

B21t—32 to 38 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) and light gray (10YR 7/2) mottles; weak medium subangular blocky structure; patchy clay films on faces of peds; friable; very strongly acid; gradual wavy boundary.

B22t—38 to 65 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; many coarse prominent mottles of light gray (10YR 7/1) and red (2.5YR 5/6); moderate medium subangular blocky structure; some peds have red centers that are firm; sand grains coated and bridged with clay; few soft and slightly hard nodules of ironstone; 5 to 10 percent plinthite; very strongly acid.

The solum ranges from 60 to 120 inches in thickness. All horizons except the A horizon in limed areas are very strongly acid.

The A horizon has hue of 10YR, 2.5Y, or 5Y; value of 3 to 7; and chroma of 1 to 3. The B horizon is sandy clay loam or sandy loam. It has hue of 2.5Y or 10YR, value of 5 to 7, and chroma of 4 or 6.

Leefield soils are similar to Clarendon, Pelham, and Stilson soils. They are on lower landscapes, have a thicker A horizon, and are not so well drained as Clarendon soils. They are not so well drained as Stilson soils. Leefield soils are on higher landscapes than Pelham soils and are better drained than those soils.

Lowndes series

The Lowndes series consists of deep, well drained, moderately permeable soils that formed in sandy and loamy marine sediments. The Lowndes soils are on the sides of Coastal Plain uplands. Local relief commonly ranges from 130 to 200 feet. Slopes range from 5 to 12 percent.

Typical pedon of Lowndes loamy sand, 5 to 12 percent slopes, in a pasture; 1.1 miles south of the intersection of Georgia Highway 357 and Loch Laurel Road and 50 feet west of road:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; medium acid; clear wavy boundary.

A2—7 to 24 inches; dark yellowish brown (10YR 4/4) loamy sand; weak fine granular structure; very friable; common medium dark grayish brown splotches from Ap horizon; common fine roots; medium acid; gradual wavy boundary.

A3—24 to 30 inches; brown (7.5YR 4/4) loamy sand; weak fine granular structure; very friable; common streaks and pockets of pale brown (10YR 6/3) loamy sand; few fine roots; medium acid; clear wavy boundary.

B21t—30 to 40 inches; strong brown (7.5YR 5/6) sandy clay loam; weak fine subangular blocky structure; friable; sand grains coated and bridged with clay; few fine hard white rounded nodules; strongly acid; clear wavy boundary.

B&A'2—40 to 48 inches; strong brown (7.5YR 5/6) loamy sand and common medium distinct pockets of light yellowish brown (2.5Y 6/4) sand; single grained; very friable; very strongly acid; clear wavy boundary.

B'22t—48 to 56 inches; strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few fine hard white rounded nodules; very strongly acid; clear wavy boundary.

B'23t—56 to 65 inches; strong brown (7.5YR 5/6) sandy clay; few fine prominent light gray and few medium distinct reddish brown (2.5YR 4/4) pockets of sandy clay loam; moderate medium subangular blocky structure; firm; few fine hard white rounded nodules; thin clay films on faces of peds; very strongly acid; clear wavy boundary.

B3—65 to 76 inches; strong brown (7.5YR 5/8) sandy loam; common medium distinct reddish yellow (5YR 6/6) pockets of sandy clay loam; weak medium subangular blocky structure; very friable; few fine hard white rounded nodules; very strongly acid.

The solum ranges from 60 to more than 80 inches in thickness. It ranges from very strongly acid to medium acid throughout except for the A horizon in limed areas.

The A horizon has hue of 10YR, 7.5YR, or 2.5Y; value of 3 to 6; and chroma of 2 to 8. The B21t horizon is sandy loam or sandy clay loam. It has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. The B&A'2 horizon is sand or loamy sand in the A'2 part and loamy sand or sandy loam in the B part. It has hue of 10YR, 2.5Y, or 7.5YR; value of 5 or 6; and chroma of 3 to 8. The B'2t horizon is sandy clay loam or sandy clay, and the B3 horizon is sandy loam or loamy sand. The B'2t and B3 horizons have hue of 7.5YR or 5YR, value of 5 or 6, and chroma of 4 to 8.

Lowndes soils are associated on the landscape with Chipley, Valdosta, and Lakeland soils. Chipley and Lakeland soils do not have the phosphatic nodules common in Lowndes soils. Valdosta soils have a thicker sandy layer above the A'2&B horizon than Lowndes soils commonly have.

Mascotte series

The Mascotte series consists of deep, poorly drained, moderately permeable soils that have a weakly cemented layer in the subsoil. These soils formed in sandy and loamy marine sediments. They are on low flats. Local relief commonly ranges from 135 to 150 feet. Slopes range from 0 to 2 percent.

Typical pedon of Mascotte sand; 0.25 mile south of junction of U.S. Highway 84 and C.C.C. road; 1.25 miles southwest of Delmar, and 2 miles southeast of Indianola:

A1—0 to 5 inches; black (10YR 2/1) sand; weak fine granular structure; many fine roots; many clean sand grains; very friable; very strongly acid; abrupt smooth boundary.

A2—5 to 15 inches; light brownish gray (10YR 6/2) sand; weak fine granular structure; common clean sand grains; very friable; very strongly acid; abrupt smooth boundary.

B21h—15 to 18 inches; very dark brown (10YR 2/2) sand; weak fine granular structure; friable; few clean sand grains; very strongly acid; clear wavy boundary.

B22h—18 to 22 inches; dark reddish brown (5YR 3/2) sand; common medium distinct mottles of dark brown (7.5YR 4/4); weak fine granular structure; weakly cemented; friable; very strongly acid; gradual wavy boundary.

B23h—22 to 26 inches; dark brown (7.5YR 3/2) sand; common medium distinct mottles of yellowish brown (10YR 5/4); weak fine granular structure; friable; very strongly acid; gradual wavy boundary.

A'2—26 to 32 inches; pale yellow (2.5Y 7/4) sand; common medium distinct mottles of brownish yellow (10YR 6/8); weak fine granular structure; very friable; very strongly acid; gradual wavy boundary.

B'2tg—32 to 65 inches; light gray (10YR 7/1) sandy clay loam; many coarse prominent mottles of brownish yellow (10YR 6/6) and yellowish brown (10YR 5/8); moderate medium subangular blocky structure; friable; very strongly acid.

The profile is strongly acid or very strongly acid throughout. Depth to the underlying argillic horizon is 24 to 36 inches.

The A horizon has hue of 10YR, value of 2 to 6, and chroma of 1 or 2. The Bh horizon has hue of 10YR, 5YR, or 7.5YR; value of 2 or 3; and chroma of 0 to 4; or it is neutral. The A'2 horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 4. The B'tg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 0 to 2, or it is neutral. It ranges from sandy loam to sandy clay loam.

Mascotte soils are similar to Bayboro, Leefield, Olustee, and Pelham soils. Mascotte soils have a Bh horizon, which is not common in Bayboro, Leefield, and Pelham soils. Mascotte soils have a leached A2 horizon above the Bh horizon, which is not common in Olustee soils.

Myatt series

The Myatt series consists of deep, poorly drained, moderately permeable soils that formed in loamy sediments. These nearly level soils are on stream terraces. Local relief commonly ranges from 75 to 150 feet. Slopes range from 0 to 2 percent.

Typical pedon of Myatt fine sandy loam in an area of Myatt-Osier association, 2.25 miles south of Redland Church and 0.4 mile northwest of bridge over Withlacoochee River between Lowndes and Brooks Counties:

A1—0 to 7 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; gradual smooth boundary.

A2g—7 to 15 inches; light brownish gray (10YR 6/2) fine sandy loam; weak fine granular and weak medium subangular blocky structure; friable; common fine roots; very strongly acid; gradual wavy boundary.

B21tg—15 to 40 inches; gray (10YR 6/1) sandy clay loam; few medium distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; friable; few fine roots in upper part; patchy clay films on surfaces of peds; very strongly acid; gradual smooth boundary.

B22tg—40 to 52 inches; gray (10YR 6/1) clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; thin patchy clay films on surfaces of peds; very strongly acid; gradual wavy boundary.

B3g—52 to 60 inches; gray (10YR 6/1) sandy loam; massive; very friable; very strongly acid.

The solum ranges from about 40 to 60 inches in thickness. It is strongly acid or very strongly acid throughout.

The A horizon has hue of 10YR, value of 3 to 6, and chroma of 1 or 2. The Bt horizon is sandy clay loam or clay loam. It has hue of 10YR, value of 6 or 7, and chroma of 1. Brown mottles are throughout the horizon.

Myatt soils are similar to Grady and Pelham soils. Grady and Pelham soils are commonly in depressions on Coastal Plain uplands. In addition, Myatt soils contain less clay in the lower part of the B horizon than Grady and Pelham soils.

Nankin series

The Nankin series consists of well drained, moderately slowly permeable soils that formed in loamy and clayey marine sediments. The Nankin soils are on ridgetops and hillsides of Coastal Plain uplands. Local relief commonly ranges from 130 to 200 feet. Slopes range from 2 to 8 percent.

Typical pedon of Nankin sandy loam, 2 to 8 percent slopes; south of Georgia Highway 94 on James Road, 0.25 mile west of Interstate Highway 75, and 1.5 miles east of Brooks-Lowndes County line at Little River on west side of road:

A1—0 to 4 inches; dark grayish brown (10YR 4/2) sandy loam; moderate medium granular structure; very friable; many fine roots; strongly acid; clear wavy boundary.

A2—4 to 8 inches; yellowish brown (10YR 5/4) sandy loam; common splotches of dark grayish brown; moderate medium granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

B21t—8 to 18 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; firm; common fine roots; thin patchy clay films on faces of peds; strongly acid; clear wavy boundary.

B22t—18 to 30 inches; yellowish brown (10YR 5/6) clay; common medium prominent red (2.5YR 4/8) mottles and few medium distinct light yellowish brown (2.5Y 6/4) mottles; moderate medium angular blocky and blocky structure; firm; few fine roots; thin clay films on faces of peds; strongly acid; gradual wavy boundary.

B23t—30 to 48 inches; mottled brownish yellow (10YR 6/8), red (2.5YR 5/6), and white (5Y 8/2) sandy clay loam; moderate medium subangular blocky structure with weak coarse prismatic structure in part of pedon; firm; few medium roots between peds and prisms; thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B3—48 to 65 inches; mottled yellowish brown (10YR 5/6), yellow (10YR 7/8), and white (5Y 8/2) sandy clay loam; weak medium subangular blocky structure with weak coarse prismatic structure in part of pedon; firm; very strongly acid.

The solum ranges from 60 to more than 80 inches in thickness. It is strongly acid or very strongly acid. Nodules of ironstone make up 0 to 5 percent of the soil material.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 4. The B horizon is sandy clay or clay to a depth of 28 to 35 inches and sandy clay loam or sandy loam below. The upper part of the B horizon has hue of 7.5YR, 10YR, or 5YR; value of 5 or 6; and chroma of 4, 6, and 8. The lower part of the B horizon has common to many red, brown, gray, and white mottles.

Nankin soils are similar to Dothan and Tifton soils. Dothan and Tifton soils are less clayey in the upper part of the Bt horizon and contain more plinthite within 60 inches of the surface than Nankin soils.

Olustee series

The Olustee series consists of poorly drained soils that are moderately permeable except for the rapidly permeable A and A'2 horizons. These soils formed in thick beds of sandy and loamy marine sediments on low flats of the lower Coastal Plain. Local relief ranges from 135 to 150 feet. Slopes range from 0 to 2 percent.

Typical pedon of Olustee sand along Civilian Conservation Corps Road; 1.25 miles south of Junction of Civilian Conservation Corps Road and U.S. Highway 84, 2.75 miles southeast of Indianola, 2.25 miles southwest of Delmar, and 2.75 miles northwest of Blanton:

A1—0 to 7 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; loose; many fine roots; very strongly acid; clear wavy boundary.

Bh—7 to 12 inches; very dark grayish brown (10YR 3/2) sand; weak fine granular structure; friable; many fine roots; weakly cemented; very strongly acid; clear wavy boundary.

B3—12 to 15 inches; dark grayish brown (10YR 4/2) sand; common medium faint pale brown mottles; weak fine granular structure; very friable; few fine roots; very strongly acid; clear wavy boundary.

A'2—15 to 34 inches; light gray (2.5Y 7/2) sand; common medium faint brownish yellow mottles and few fine faint yellowish brown mottles; weak fine granular structure; very friable; few fine roots; pockets of clean sand grains; very strongly acid; clear wavy boundary.

B'2tg—34 to 65 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; sand grains bridged with clay; few nodules of ironstone; few clay films on surfaces of peds and in pores; very strongly acid.

The horizons are strongly acid or very strongly acid throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1. The Bh horizon has hue of 10YR, 7.5YR, or 5YR and value and chroma of 2 or 3. The A'2 horizon has hue of 10YR or 2.5Y, value of 5 or more, and chroma of 2 or less; it has yellow and brown mottles. The B't horizon has hue of 10YR, value of 4 to 7, and chroma of 2 or less. It is heavy sandy loam or sandy clay loam.

Olustee soils are similar to Mascotte and Pelham soils. They do not have the leached A2 horizon above the Bh horizon that is common in Mascotte soils. Olustee soils have a Bh horizon, which is not common in Pelham soils.

Osier series

The Osier series consists of nearly level (0 to 2 percent slopes), deep, poorly drained, rapidly permeable soils that formed in sandy sediments. These soils are on flood plains adjacent to the main stream channel. Local relief commonly ranges from 75 to 150 feet.

Typical pedon of Osier sand in an area of Myatt-Osier association; 2.25 miles south of Redland Church and 0.4 mile northwest of bridge over Withlacoochee River between Lowndes and Brooks Counties:

A1—0 to 12 inches; grayish brown (10YR 5/2) sand; single grained; very friable; many fine and coarse roots; very strongly acid; abrupt wavy boundary.

C1—12 to 30 inches; light brownish gray (10YR 6/2) sand; common medium distinct very dark brown (10YR 2/2) mottles; single drained; loose; few fine roots; very strongly acid; gradual wavy boundary.

C2—30 to 60 inches; gray (10YR 5/1) sand; common medium distinct very pale brown (10YR 7/3) mottles; single grained; loose; very strongly acid.

Thickness of the sand exceeds 60 inches. Reaction is medium acid to very strongly acid throughout the profile.

The A horizon has hue of 10YR or 2.5Y, value of 2 to 5, and chroma of 1 or 2. The C horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. Brown mottles are throughout the horizon.

Osier soils are similar to Chipley and Lakeland soils. Osier soils are more poorly drained and are lower on the landscape than Chipley or Lakeland soils.

Ousley series

The Ousley series consists of deep, moderately well drained, rapidly permeable soils that formed in sandy fluvial sediments near large streams. Ousley soils are on low Coastal Plain terraces and flood plains. Local relief commonly ranges from 90 to 150 feet. Slopes range from 0 to 2 percent.

Typical pedon of Ousley loamy fine sand; 1.3 miles east of Naylor, Georgia, on U.S. Highway 84 to crossroad; 1.1 miles north to another crossroad; 1.1 miles east on old State road; and 0.25 mile south-southeast of old bridge site:

A11—0 to 6 inches; dark gray (10YR 4/1) loamy fine sand; many medium distinct brown (10YR 5/3) mottles; single grained; very friable; common fine roots; very strongly acid; abrupt wavy boundary.

A12—6 to 17 inches; grayish brown (2.5Y 5/2) fine sand; common medium fine light brownish gray (2.5Y 6/2) mottles; weak medium granular structure; loose; common fine roots; very strongly acid; gradual wavy boundary.

C1—17 to 28 inches; pale yellow (2.5Y 7/4) sand; common fine distinct grayish brown and common medium faint light gray (2.5Y 7/2) mottles; single grained; loose; few fine roots; 1 inch thick lenses of light gray (5Y 7/2) fine sand in lower part of horizon; strongly acid; clear smooth boundary.

C2—28 to 43 inches; pale yellow (2.5Y 7/4) coarse sand; common medium distinct light gray (5Y 7/2), light brownish gray (2.5Y 6/2), and brownish yellow (10YR 6/6) mottles; single grained; loose; few fine roots and pores; many coarse pockets of light gray fine sand; strongly acid; gradual wavy boundary.

C3—43 to 65 inches; light gray (10YR 7/1) fine sand; common medium faint very pale brown (10YR 7/3) mottles; single grained; loose; many fine black particles of organic matter; strongly acid; gradual wavy boundary.

C4—65 to 82 inches; light gray (10YR 7/2) fine sand; few fine distinct light yellowish brown mottles; single grained; loose; many fine black particles of organic matter; strongly acid.

The sandy horizons are 80 inches or more in thickness. In unlimed areas the profile is strongly acid or very strongly acid.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 7, and chroma of 1 or 2. The C horizon is fine sand, sand, or coarse sand. It has hue of 10YR or 2.5Y; value of 5 to 8; and chroma of 1, 2, 3, 4, and 6. Mottles with chroma of 2 or less are within 40 inches of the surface. They range from none to common in the C1 horizon and from few to common in the C2 horizon.

Ousley soils are associated on the landscape with Chipley and Lakeland soils. Ousley soils have a seasonal water table within the control section and are subject to flooding, and Chipley soils do not. Lakeland soils are better drained than Ousley soils.

Pelham series

The Pelham series consists of deep, nearly level (0 to 2 percent slopes), poorly drained, moderately permeable soils that formed in unconsolidated sandy and loamy marine sediments. Pelham soils are on broad flats and in depressions and drainageways. Local relief commonly ranges from 150 to 200 feet. Slopes are concave in most places.

Typical pedon of Pelham loamy sand in Kinderlou Forest; 1.25 miles northwest of Rocky Ford Road, 1.25 miles south of Lake Virginia, and 2 miles northwest of Mount Zion Church:

A1—0 to 8 inches; black (10YR 2/1) loamy sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A2—8 to 25 inches; gray (10YR 6/1) loamy sandy; weak fine granular structure; very friable; common medium roots; very strongly acid; gradual wavy boundary.

B21tg—25 to 37 inches; gray (10YR 6/1) sandy loam; few fine faint very pale brown mottles; weak fine subangular blocky structure; very friable; few medium roots; sand grains bridged and coated; very strongly acid; gradual wavy boundary.

B22tg—37 to 65 inches; gray (10YR 6/1) sandy clay loam; common medium distinct light yellowish brown (10YR 6/4) and yellowish brown

(10YR 5/8) mottles; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few sand lenses; very strongly acid.

The solum is 60 inches or more in thickness. It is strongly acid or very strongly acid except for the A horizon in limed areas.

The A horizon has hue of 10YR, 5Y, or 5YR; value of 3 to 7; and chroma of 0 to 2; or it is neutral. The B horizon is sandy loam or sandy clay loam. It has hue of 10YR, 2.5Y, or 5Y; value of 5 to 7; and chroma of 1 or 2.

Pelham soils are associated on the landscape with Leefield, Mascotte, and Olustee soils. Pelham soils are lower on the landscape than are the associated soils. Pelham soils do not have the Bh horizon common in Mascotte and Olustee soils and the plinthite common in Leefield soils.

Stilson series

The Stilson series consists of moderately well drained, moderately permeable soils that formed in thick beds of sandy and loamy marine sediments. These soils are nearly level and are on low uplands of the Coastal Plain. Local relief commonly ranges from 150 to 225 feet. Slopes range from 0 to 2 percent.

Typical pedon of Stilson loamy sand; 1 mile northwest of U.S. Highway 84; 1 mile northeast of Lowndes County Forest Fire Tower Headquarters; and 0.75 mile northwest of Indianola:

A1—0 to 7 inches; dark gray (5Y 4/1) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

A2—7 to 26 inches; light yellowish brown (2.5Y 6/4) loamy sand; weak fine faint yellow mottles; weak fine granular structure; very friable; few fine roots; very strongly acid; clear wavy boundary.

B1—26 to 31 inches; yellow (2.5Y 7/6) sandy loam; weak medium subangular blocky structure; very friable; very strongly acid; gradual wavy boundary.

B1t—31 to 38 inches; yellow (2.5Y 7/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable; few small hard nodules of ironstone; 5 percent plinthite; very strongly acid; gradual wavy boundary.

B22t—38 to 60 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct light gray (10YR 7/1) and red (2.5YR 5/6) mottles; moderate medium subangular blocky structure; patchy clay films on faces of peds; 10 percent plinthite; very strongly acid; gradual wavy boundary.

B23t—60 to 65 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) and red (2.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; clay films on some ped surfaces; 10 percent plinthite; very strongly acid.

The solum ranges from 60 to more than 70 inches in thickness. It is strongly acid or very strongly acid except for the A horizon in limed areas.

The A horizon has hue of 5Y, 10YR, or 2.5Y; value of 3 to 7; and chroma of 0, 1, 2, 4, or 6; or it is neutral. The B horizon is sandy loam or sandy clay loam. Hue is 10YR or 2.5Y, value is 5 to 7, and chroma is 4, 6, or 8.

Stilson soils are similar to Dothan, Leefield, and Pelham soils. They are lower on the landscape than Dothan soils and are more poorly drained. Leefield and Stilson soils are nearly level and are on uplands of the Coastal Plain, but Stilson soils are better drained. Stilson soils are higher on the landscape than the more poorly drained Pelham soils.

Sunsweet series

The Sunsweet series consists of well drained, moderately slowly permeable soils that formed in clayey marine sediments. Sunsweet soils are gently sloping and are on hillsides. Local relief commonly ranges from 175 to 235 feet. Slopes range from 5 to 8 percent.

Typical pedon of Sunsweet sandy loam, 5 to 8 percent slopes, eroded; 0.5 mile northwest of Westside School on Riverside Road, 150 feet east of county dirt road, and 1.5 miles southwest of junction of Georgia Highway 94 and Interstate Highway 75:

Apcn—0 to 3 inches; dark brown (7.5YR 4/4) sandy loam; weak fine granular to moderate medium granular structure; very friable; 10 percent nodules of ironstone 1/8 to 1 inch in diameter; many fine roots; very strongly acid; abrupt smooth boundary.

B21tcn—3 to 15 inches; yellowish red (5YR 5/6) sandy clay; moderate medium subangular blocky structure; firm; 5 percent nodules of ironstone; common fine roots; very strongly acid; clear smooth boundary.

B22t—15 to 30 inches; strong brown (7.5YR 5/6) sandy clay; many medium prominent yellowish red (5YR 4/6) and brownish yellow (10YR 6/6) mottles; strong medium subangular blocky structure; firm; continuous clay films on faces of peds; few nodules of ironstone; 5 to 10 percent plinthite; very strongly acid; abrupt wavy boundary.

B23t—30 to 60 inches; reticulately mottled white (10YR 8/2), strong brown (7.5YR 5/6), and red (2.5YR 4/8) sandy clay; strong medium subangular blocky structure; clay films on faces of peds; firm; 10 percent plinthite; very strongly acid.

The solum ranges from 60 to more than 70 inches in thickness. The profile is very strongly acid or strongly acid. Depth to plinthite is 12 to 15 inches.

The A horizon has hue of 10YR, 7.5YR, or 2.5Y; value of 3 to 5; and chroma of 2, 3, 6, or 8. The B horizon is clay or sandy clay but ranges to sandy clay loam. Hue is 2.5YR, 5YR, 7.5YR, or 10YR; value is 4 through 6; and chroma is 4, 6, or 8.

Sunsweet soils are associated on the landscape with Nankin and Tifton soils. Sunsweet soils have plinthite at a shallower depth than these nearby soils. In addition, Sunsweet soils have a more clayey B horizon than Tifton soils and contain more plinthite than Nankin soils.

Tifton series

The Tifton series consists of deep, well drained, moderately permeable soils that formed in thick beds of loamy marine sediments. The Tifton soils are on ridgetops and on hillsides near drainageways. Local relief is commonly 150 to 235 feet. Slopes range from 0 to 5 percent.

Typical pedon of Tifton loamy sand, 2 to 5 percent slopes, in a cultivated field; 1.5 miles south of junction of U.S. Highway 84 and 221 and Georgia Highway 94, and 50 yards east of St. Augustine Road:

Apcn—0 to 8 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; many small hard nodules of ironstone 1/8 to 1/2 inch in diameter; many fine roots; very strongly acid; abrupt boundary.

B21tcn—8 to 26 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; many nodules of ironstone; common fine roots in upper part; very strongly acid; clear wavy boundary.

B22t—26 to 41 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few soft and hard nodules of ironstone; very strongly acid; clear wavy boundary.

B23t—41 to 60 inches; yellowish brown (10YR 5/8) sandy clay loam; many medium distinct red (2.5YR 4/8) mottles and pale yellow (5Y 7/4) mottles; moderate medium subangular blocky structure; friable; clay films on some faces of peds; few soft nodules of ironstone; 25 to 30 percent plinthite; very strongly acid.

The solum ranges from 60 to 72 or more inches in thickness. All horizons are very strongly acid or strongly acid except for the A horizon in limed areas.

The A horizon has hue of 10YR or 2.5Y; value of 3 to 6; and chroma of 1, 2, 3, 4, and 6. The B horizon has hue of 10YR or 7.5YR; value of 5 or 6; and chroma of 4, 6, and 8.

Tifton soils are associated on the landscape with Clarendon, Dothan, Fuquay, and Sunsweet soils. They are similar to Dothan soils except that they contain more nodules of ironstone throughout. Tifton soils are better drained than Clarendon soils; in addition, they lack the fragipan and perched water table common in Clarendon soils. Tifton soils are less clayey and are deeper to plinthite than Sunsweet soils. Tifton soils do not have the thick A horizon common in Fuquay soils.

Valdosta series

The Valdosta series consists of deep, well drained or excessively drained, rapidly permeable soils that formed in sandy marine sediments. The Valdosta soils are on ridgetops of Coastal Plain uplands. Local relief commonly ranges from 130 to 200 feet. Slopes range from 0 to 5 percent.

Typical pedon of Valdosta sand, 0 to 5 percent slopes, on a broad, nearly level interfluve; 4.2 miles southwest of Lake Park, 300 yards east of Grassy Pond, and 150 yards west of powerline:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; very friable; common fine roots; very strongly acid; gradual wavy boundary.

B11—10 to 24 inches; dark yellowish brown (10YR 4/4) loamy sand; weak medium subangular blocky structure parting to weak fine granular structure; very friable; common fine roots; few fragments of charcoal randomly distributed; strongly acid; gradual smooth boundary.

B12—24 to 41 inches; brown (7.5YR 4/4) loamy sand; weak fine granular structure; very friable; common fine roots; sand grains coated with clay; strongly acid; gradual smooth boundary.

B13—41 to 56 inches; brown (7.5YR 4/4) loamy sand; weak medium granular structure; very friable; few fine roots; common fine pores; sand grains coated with clay; strongly acid; gradual smooth boundary.

B14—56 to 60 inches; yellowish brown (10YR 5/4) sand; weak fine granular structure; friable; few fine roots; sand grains coated with clay; bodies of clear clean sand grains make up 5 percent of the volume; strongly acid; gradual smooth boundary.

A'2&B2t—60 to 99 inches; alternating layers of light yellowish brown (10YR 6/4) sand 5 to 10 centimeters thick and strong brown (7.5YR 5/6) sandy loam 1 to 2 centimeters thick; sand layer is single grained, loose, and uncoated; bands of sandy loam are very friable or loose and have weak medium granular structure, sand grains coated and bridged; sand layers make up 80 percent of horizon, sandy loam about 20 percent; strongly acid.

The solum is 80 inches or more in thickness. It ranges from very strongly acid to medium acid except for the A horizon in limed areas. Hard, white, rounded nodules range from none to common in all horizons. Total phosphorus ranges from 0.05 to 0.25 percent in all horizons and is more than 0.10 percent in some horizons above a depth of 80 inches. Lamellae are at a depth of 60 to 80 inches.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 or 3. The B1 horizon ranges from loamy sand to loamy fine sand in the upper and middle parts and is loamy sand or sand in the lower part. The B11, B12, and B13 horizons have hue of 7.5YR or 10YR; value of 4 to 8; and chroma of 3, 4, 6, or 8. The B14 horizon has hue of 10YR; value of 5 to 8; and chroma of 3, 4, or 6. The A'2&B2t horizon consists of alternate bands of sandy loam, sand, or loamy sand. These horizons have hue of 10YR or 7.5YR; value of 5 to 8; and chroma of 1, 2, 3, 4, 6, or 8.

Valdosta soils are similar to Chipley, Lakeland, and Lowndes soils. Valdosta soils are better drained than Chipley soils. They contain phosphatic nodules, which are not common in Chipley and Lakeland soils. Valdosta soils are on smoother topography and have less clay in the B horizon than Lowndes soils.

Wahee series

The Wahee series consists of deep, somewhat poorly drained, slowly permeable soils that formed in loamy or clayey marine or fluvial sediments. The Wahee soils are on stream terraces. Local relief commonly ranges from 100 to 150 feet. Slopes range from 0 to 2 percent.

Typical pedon of Wahee fine sandy loam in an area of Wahee soils, 200 yards north of the Little River at the Brooks-Lowndes County line and 3.5 miles southwest of Junction of Interstate Highway 75 and North Valdosta Road:

A1—0 to 4 inches; very dark gray (10YR 3/1) fine sandy loam; moderate medium granular structure; many fine roots; very strongly acid; clear wavy boundary.

A2—4 to 9 inches; grayish brown (2.5Y 5/2) fine sandy loam; moderate medium granular structure; friable; many fine roots; very strongly acid; abrupt wavy boundary.

B21t—9 to 18 inches; light olive brown (2.5Y 5/4) sandy clay loam; weak medium subangular blocky structure; friable; common fine roots; thin continuous clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—18 to 28 inches; mottled light olive brown (2.5Y 5/6), light brownish gray (2.5Y 6/2), and red (2.5YR 4/6) sandy clay; moderate medium subangular blocky structure; firm; continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—28 to 48 inches; gray (10YR 6/1) sandy clay with pockets of sandy clay loam; many medium distinct mottles of yellowish brown (10YR 5/6) and common medium distinct red (2.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

B3g—48 to 62 inches; gray (10YR 6/1) sandy clay loam with many common distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; very strongly acid.

The solum ranges from 50 to 70 inches in thickness. It is very strongly acid or strongly acid throughout.

The A horizon has hue of 10YR or 2.5Y, value of 2 to 5, and chroma of 0 to 2, or it is neutral. The B horizon is sandy clay loam, sandy clay, clay, or clay loam. The B horizon has hue of 10YR, 2.5Y, or 5Y; value of 4 to 7; and chroma of 0, 1, 2, 3, 4, 6, or 8; or it is neutral.

Wahee soils are similar to Grady and Bayboro soils. Wahee soils do not have the umbric epipedon common in Bayboro soils. Wahee soils are better drained than Grady and Bayboro soils.

Classification of the soils

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965. Readers interested in further details about the system should refer to "Soil taxonomy" (*9*).

The system of classification has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are observable in the field or from the combined data of soil science and other disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. In table 18, the soils of the survey area are classified according to the system. Categories of the system are discussed in the following paragraphs.

ORDER. Ten soil orders are recognized as classes in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to plant growth or that are selected to reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about the properties of the soil. An example is Haplaquents (*Hapl*, meaning simple horizons, plus *aquent*, the suborder of Entisols that have an aquic moisture regime).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that is thought to typify the great group. An example is Typic Haplaquents.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is fine-loamy, mixed, nonacid, mesic, Typic Haplaquents.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except for texture of the surface soil or of the underlying substratum, are similar in differentiating characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition.

Formation of the soils

GLENN L. BRAMLETT, soil scientist, Soil Conservation Service, helped to prepare this section.

In this section, the factors of soil formation are discussed and related to the formation of soils in the survey area, and the processes of soil formation are explained.

Soil is formed by the action of soil-forming processes on material deposited or accumulated by geologic forces. The characteristics of the soil at any given point are determined by (1) the physical and mineral composition of the parent material; (2) the climate under which the soil material has existed since accumulation; (3) the plant and animal life on and in the soil; (4) the relief, or lay of the land, which influences drainage; and (5) the length of time the forces of soil development have acted on the soil material (*7*).

Climate and vegetation are active factors of soil genesis. They act on the parent material that has accumulated through the weathering of rocks and slowly change it to a natural body that has genetically related horizons. The effect of climate and vegetation is conditioned by relief. The parent material also affects the kind of profile that can be formed and can, in extreme cases, determine it almost entirely. Finally, time is needed to change the parent material into a mature soil. The amount of time may be short or long, but some time is always required for soil horizons to form. Usually a long time is required for the development of a distinct horizon. Thus, for every soil, the past combinations of the five major factors are of first importance in determining its present character. All of these five factors have influenced the formation and development of the soils of Lowndes County.

The factors of soil genesis are so closely interrelated in their effects on the soil that generalizations cannot be made regarding the effect of any one unless conditions are specified for the other four.

Parent material

Parent material is the unconsolidated mass from which soils form. The kind of parent material, especially the size of the particles and the content of minerals, greatly influences the formation of soils. In Lowndes County, the parent materials of most of the soils are sedimentary; they consist of unconsolidated, fragmentary rock materials that have been deposited by water. The material ranges from coarse sand, which is chiefly quartz, to fine clay, which is a secondary silicate mineral.

Lakeland and Chipley soils formed in thick beds of sand. Because the material is mostly quartz sand, which is highly resistant to weathering, these soils do not have clay-enriched horizons. Tifton, Dothan, Stilson, and Leefield soils, for example, formed in beds of loamy material. All have well-defined, clay-enriched horizons that contain plinthite. Nankin and Sunsweet soils, on uplands, formed in beds of clayey material. They have a clayey subsoil that restricts the movement of water and air.

Climate

Precipitation, temperature, humidity, and wind act on the parent material. They also cause some variation in the plant and animal life on and in the soils. In this way they influence changes in the parent material and soil development.

Lowndes County has a warm, humid climate. The average annual temperature is about 65 degrees F, and the average annual rainfall is about 48 inches. Winters and mild; the soil freezes and thaws only occasionally and then only in the upper 2 or 3 inches of the surface layer.

Because of the warm climate and the abundance of rainfall, chemical and biological actions are rapid. The abundance of rainfall causes the soils of the ridgetops and hillsides to be highly leached and low in organic-matter content. The removal of basic elements, such as calcium, magnesium, and sodium, and their replacement by hydrogen causes the soils to be acid. Hydrogen is the dominant cation in the soils of the county. The translocation of bases and colloidal matter has made the soils less fertile and their surface layer more sandy. More information about the climate of Lowndes County is given in the section "General nature of the county."

Plant and animal life

Plants, micro-organisms, earthworms, insects, and other forms of life that live on or in the soil are active in the soil-forming process. They help decompose plant residue, and they affect the chemistry of the soils. In this way they hasten the development of a soil. Living organisms also help to convert plant nutrients into a form readily available to higher forms of life.

Plants provide the shade and cover that reduce loss of water through runoff and evaporation. They add organic matter to the soil and improve its structure and physical condition. Plant roots help to keep the soil supplied with minerals by transferring elements from the parent material to the surface layer.

Generally, the kinds of plants in an area vary according to the kinds of soils. In this county most of the soils in the upland areas contain little organic matter. Bayboro and Dasher soils are examples of soils that are in low, wet areas and that contain high amounts of organic matter.

In wooded areas the soils have a thin covering of leaf mold and a small amount of organic matter in the upper 1 to 3 inches of mineral soil material.

The very poorly drained Bayboro soils are an example of mineral soils that have a dark gray or black surface layer about 12 to 15 inches thick. The organic matter content ranges from 3 to 6 percent in the surface layer. The excessively drained Lakeland soils are an example of soils that have a brown or dark grayish brown surface layer less than 6 inches thick. Organic matter content is less than 2 percent in the surface layer.

The soils in this county formed under three broad types of vegetation. These are: longleaf pines and scattered hardwoods that have an understory of wiregrass; cypress-swamp hardwoods and scattered pines that have an understory of gallberry bushes and other water-tolerant shrubs and grasses; and scrub oaks and scattered longleaf pines.

Man has changed the direction and rate of development of some soils by clearing the forests, cultivating the soils, and introducing new kinds of plants. The results of these activities cannot readily be seen, but studies show that the organic matter content of soils is sharply reduced for a few years after fields have been cultivated. Also, in most sloping areas under cultivation, the original surface layer is lost through erosion. Although some results will probably not be evident for many centuries, the complex of living organisms that affects the formation of soils in Lowndes County has been drastically changed as a result of man's activity.

Relief

Relief modifies the effects of climate and vegetation and influences the formation of soils through its effect on drainage, erosion, temperature, and plant cover. Relief results from the entrenchment of the drainage pattern into the surface and, in places, reduces the rate of percolation of water through the soil. In this county the landscape is mostly nearly level to strongly sloping. The four general kinds of landscape in this county are narrow to broad ridges; low, nearly level ridges and flats or depressions; sand ridges; and low areas on valley floors or stream flood plains and terraces.

The narrow to broad ridges are broken by many small streams and a few small, rounded ponds. The small streams have cut below the general level of the plain and have formed very gentle and gentle side slopes. Most of the soils are well drained, and the water table is several feet below the surface. Examples are the soils of the Tifton and Fuquay series.

The low, nearly level ridges and flats are broken by sluggish streams and swampy or ponded areas. Most of the soils in these areas are moderately well drained or somewhat poorly drained, but a few are poorly drained. The water table is about 1 to 3 feet below the surface during part of the year. Among these are soils of the Pelham, Grady, Myatt, and Bayboro series.

The sand ridges are rolling or occupy narrow ridgetops near the major streams. The soils are deep and sandy, and the water table is at a depth of more than 10 feet. Among these are soils of the Lakeland series.

On valley floors, in swamps, and on low terraces, the soils are geologically young. They are predominantly poorly drained, and the water table is at or near the surface much of the time. Among these are soils of the Johnston, Osier, Ousley, Wahee, and Myatt series.

Time

The length of time required for a soil to form depends largely on the other factors of soil formation. In an uneroded mature soil, the A horizon and B horizon are readily observable. In a warm, humid climate, such as the climate of Lowndes County, less time is required for a soil to form than in a cold, dry climate. This is because moisture and warm temperature accelerate the chemical and biological activity in the soil material. Also, less time is required for a soil to form in moderately permeable material than in slowly permeable material.

In Lowndes County, soils that formed in alluvium on first bottoms do not have well defined and genetically related horizons. In contrast, Tifton and Dothan soils are on uplands and are well developed. Geologically, the soils in this county are young.

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Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim. An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single mapping unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	More than 9

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to frequent flooding.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coat, clay skin.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures is difficult.

Compressible. Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cutbanks cave. Unstable walls of cuts made by earthmoving equipment. The soil sloughs easily.

Depth to rock. Bedrock at a depth that adversely affects the specified use.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients, as for example in "hillpeats" and "climatic moors."

Erosion. The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes a bare surface.

Excess fines. Excess silt and clay. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake. The rapid movement of water into the soil.

Favorable. Favorable soil features for the specified use.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May,* for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. A soil having one or more neutral gray horizons as a result of waterlogging and lack of oxygen. The term "gleyed" also designates gray horizons and horizons having yellow and gray mottles as a result of intermittent waterlogging.

Habitat. The natural abode of a plant or animal; refers to the kind of environment in which a plant or animal normally lives, as opposed to the range or geographical distribution.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. The major horizons of mineral soil are as follows:

O horizon.—An organic layer, fresh and decaying plant residue, at the surface of a mineral soil.

A horizon.—The mineral horizon, formed or forming at or near the surface, in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon most of which was originally part of a B horizon.

A2 horizon.—A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or a combination of these; (2) by prismatic or blocky structure; (3) by redder or browner colors than those in the A horizon; or (4) by a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that from which the solum is presumed to have formed. If the material is known to differ from that in the solum the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered, but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Leaching. The removal of soluble material from soil or other material by percolating water.

Low strength. Inadequate strength for supporting loads.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is greater than that of organic soil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark colored, finely divided, well decomposed organic soil material mixed with mineral soil material. The content of organic matter is more than 20 percent.

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Parent material. The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly. The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality that enables the soil to transmit water or air, measured as the number of inches per hour that water moves through the soil. Terms describing permeability are *very slow* (less than 0.06 inch), *slow* (0.06 to 0.20 inch), *moderately slow* (0.2 to 0.6 inch), *moderate* (0.6 to 2.0 inches), *moderately rapid* (2.0 to 6.0 inches), *rapid* (6.0 to 20 inches), and *very rapid* (more than 20 inches).

Piping. Formation by moving water of subsurface tunnels or pipelike cavities in the soil.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents that commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on exposure to repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade, whereas ironstone cannot be cut but can be broken or shattered with a spade. Plinthite is one form of the material that has been called laterite.

Poor outlets. Surface or subsurface drainage outlets difficult or expensive to install.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rooting depth. Shallow root zone. The soil is shallow over a layer that greatly restricts roots. See Root zone.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged in stream channels from a drainage area. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Seepage. The rapid movement of water through the soil. Seepage adversely affects the specified use.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Sinkhole. A depression in a landscape where limestone has been locally dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow intake. The slow movement of water into the soil.

Slow refill. The slow filling of ponds, resulting from restricted permeability in the soil.

Soil. A natural, three-dimensional body at the earth's surface that is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates that are separated from adjoining aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer. Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The condition of the soil, especially the soil structure, as related to the growth of plants. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil (engineering). Presumably a fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Unstable fill. Risk of caving or sloughing in banks of fill material.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Illustrations

Figure 1.—The Alapaha River, unspoiled, wild, and scenic, forms part of the eastern boundary of Lowndes County. It provides water sports and fishing for hundreds of people.

Figure 2.—Lime sinks are throughout the county. The associated soil is Tifton loamy sand.

Figure 3.—Aquatic plants on Bayboro loam.

Figure 4.—Cattle grazing improved bermudagrass on Fuquay loamy sand, 0 to 5 percent slopes.

Figure 5.—Multiple land use. These cattle are grazing improved bermudagrass in a pecan orchard. The soil is Tifton loamy sand, 2 to 5 percent slopes.

Figure 6.—Soybeans on Tifton loamy sand, 0 to 2 percent slopes. This soil is used extensively for soybeans.

Figure 7.—This livestock sewage lagoon was built to service about 400 dairy cows. The associated soil is a Tifton loamy sand.

Figure 8.—Irrigation pit on Leefield loamy sand. This pit is a good source of water for irrigating tobacco.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

[Recorded in the period 1951-74 at Quitman, Ga.]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	63.9	38.7	51.3	81	16	193	3.84	1.68	5.59	6	0
February---	66.2	40.3	53.2	83	21	188	4.71	2.64	6.38	7	.1
March-------	72.9	46.4	59.7	87	26	321	4.45	2.29	6.21	6	0
April-------	80.2	53.7	67.0	91	36	510	4.27	1.35	6.58	5	0
May---------	86.8	60.3	73.6	97	44	732	4.02	1.63	5.96	6	0
June--------	90.9	66.8	78.9	100	54	867	5.33	2.62	7.53	7	0
July--------	91.9	69.5	80.7	99	61	952	6.74	4.36	8.89	11	0
August------	91.9	69.4	80.7	99	61	952	6.08	3.85	8.08	9	0
September--	88.7	66.3	77.5	98	53	825	4.47	1.98	6.49	6	0
October-----	81.2	54.8	68.1	93	32	561	1.83	.60	2.82	3	0
November---	72.3	44.5	58.4	87	24	258	2.19	.88	3.23	4	0
December---	65.6	39.2	52.4	83	19	181	3.90	2.13	5.34	6	0
Year------	79.4	54.2	66.8	102	15	6,540	51.83	42.89	60.33	76	.1

[1] A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1951-74 at Quitman, Ga.]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 2	March 26	April 4
2 years in 10 later than--	February 21	March 16	March 27
5 years in 10 later than--	February 1	February 24	March 12
First freezing temperature in fall:			
1 year in 10 earlier than--	November 16	October 31	October 28
2 years in 10 earlier than--	November 29	November 10	November 2
5 years in 10 earlier than--	December 25	November 30	November 12

TABLE 3.--GROWING SEASON LENGTH

[Recorded in the period 1951-74 at Quitman, Ga.]

Probability	Daily minimum temperature during growing season		
	Higher than 24 F	Higher than 28 F	Higher than 32 F
	Days	Days	Days
9 years in 10	279	233	216
8 years in 10	292	248	226
5 years in 10	319	278	244
2 years in 10	365	308	262
1 year in 10	365	323	272

TABLE 4.—ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
AdA	Albany sand, 0 to 2 percent slopes	20,320	6.3
Bm	Bayboro loam	7,880	2.4
ChA	Chipley sand, 0 to 2 percent slopes	5,040	1.6
Cn	Clarendon loamy sand	3,490	1.1
Da	Dasher muck	4,170	1.3
DoB	Dothan loamy sand, 1 to 5 percent slopes	1,700	0.5
FsB	Fuquay loamy sand, 0 to 5 percent slopes	14,610	4.5
Gr	Grady sandy loam	1,990	0.6
Jo	Johnston loam	15,840	4.9
LaC	Lakeland sand, 0 to 8 percent slopes	33,660	10.4
Le	Leefield loamy sand	22,860	7.0
Lu	Leefield-Urban land complex	2,200	0.7
LwC	Lowndes loamy sand, 5 to 12 percent slopes	3,500	1.1
Mn	Mascotte sand	20,970	6.5
MO	Myatt-Osier association	23,770	7.3
NkC	Nankin sandy loam, 2 to 8 percent slopes	1,353	0.4
Oa	Olustee sand	14,820	4.6
Ou	Ousley loamy fine sand	5,030	1.5
Pe	Pelham loamy sand	41,577	12.8
Se	Stilson loamy sand	5,210	1.6
SuC2	Sunsweet sandy loam, 5 to 8 percent slopes, eroded	2,150	0.7
TfA	Tifton loamy sand, 0 to 2 percent slopes	11,460	3.5
TfB	Tifton loamy sand, 2 to 5 percent slopes	38,160	11.7
TuB	Tifton-Urban land complex, 0 to 5 percent slopes	8,240	2.5
VaB	Valdosta sand, 0 to 5 percent slopes	11,180	3.4
WA	Wahee soils	3,620	1.1
	Total	324,800	100.0

TABLE 5.—YIELDS PER ACRE OF CROPS AND PASTURE

[All yields were estimated for a high level of management in 1975. Absence of a yield figure indicates the crop is seldom grown or is not suited]

Soil name and map symbol	Corn	Soybeans	Cotton lint	Tobacco	Peanuts	Improved bermuda-grass	Bahiagrass
	Bu	Bu	Lb	Lb	Lb	AUM[1]	AUM[1]
Albany:							
AdA	65	25	—	2,100	1,700	7.0	6.5
Bayboro:							
Bm	—	—	—	—	—	—	—
Chipley:							
ChA	50	20	—	2,000	2,200	8.0	7.5
Clarendon:							
Cn	110	40	700	3,000	2,700	10.5	10.0
Dasher:							
Da	—	—	—	—	—	—	—
Dothan:							
DoB	80	42	750	2,400	2,200	9.5	8.0
Fuquay:							
FsB	80	30	650	2,400	2,900	8.5	7.0
Grady:							
Gr	—	—	—	—	—	—	5.0
Johnston:							
Jo	—	—	—	—	—	—	—
Lakeland:							
LaC	55	20	—	1,700	2,000	7.0	7.0
Leefield:							
Le, Lu	85	30	500	2,300	2,200	8.7	8.0
Lowndes:							
LwC	—	—	—	—	—	7.0	6.0
Mascotte:							
Mn	—	—	—	—	—	—	8.0
Myatt:							
[2]MO:							
Myatt part	—	—	—	—	—	—	5.0
Osier part	—	—	—	—	—	—	5.0
Nankin:							
NkC	55	20	—	2,000	1,800	7.0	6.0
Olustee:							
Oa	70	30	—	2,200	1,800	7.5	8.5
Ousley:							
Ou	50	20	—	—	—	7.5	7.5
Pelham:							
Pe	—	—	—	—	—	—	6.0
Stilson:							
Se	80	35	600	2,600	3,100	10.0	7.5
Sunsweet:							
SuC2	—	—	—	—	—	6.0	6.0
Tifton:							
TfA	100	46	950	3,200	—	10.5	8.5

See footnotes at end of table.

TABLE 5.—YIELDS PER ACRE OF CROPS AND PASTURE—Continued

Soil name and map symbol	Corn	Soybeans	Cotton lint	Tobacco	Peanuts	Improved bermuda-grass	Bahiagrass
	Bu	Bu	Lb	Lb	Lb	AUM[1]	AUM[1]
Tifton: TfB, TuB	100	46	950	2,600	3,200	10.5	8.5
Valdosta: VaB	65	—	—	1,800	2,200	11.0	9.0
Wahee: WA	90	40	—	—	—	—	8.0

[1]Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for a period of 30 days.
[2]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 6.—CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas excluded. Absence of an entry means no acreage]

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	11,460	—	—	—	—
II	96,470	48,100	33,760	14,610	—
III	61,363	1,353	43,790	16,220	—
IV	60,280	2,150	20,970	37,160	—
V	67,337	—	67,337	—	—
VI	7,880	—	7,880	—	—
VII	20,010	—	20,010	—	—
VIII	—	—	—	—	—

TABLE 7.—WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed in this table. Absence of an entry in a column means the information was not available]

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Important trees	Potential productivity: Site index	Trees to plant
Albany:							
AdA	3w	Slight	Moderate	Moderate	Loblolly pine	80	Loblolly pine, slash pine.
					Slash pine	80	
					Longleaf pine	67	
Bayboro:							
Bm	2w	Slight	Severe	Severe	Loblolly pine	95	Slash pine, loblolly pine, sweetgum, water tupelo.
					Sweetgum	94	
					Slash pine	95	
					Yellow-poplar	—	
					Southern red oak	—	
					White oak	—	
Chipley:							
ChA	2s	Slight	Moderate	Slight	Slash pine	90	Slash pine, loblolly pine.
					Loblolly pine	90	
					Longleaf pine	80	
Clarendon:							
Cn	2w	Slight	Moderate	Slight	Loblolly pine	90	Loblolly pine, slash pine, American sycamore, yellow-poplar, sweetgum.
					Slash pine	90	
					Sweetgum	85	
Dothan:							
DoB	2o	Slight	Slight	Slight	Slash pine	90	Slash pine, loblolly pine, longleaf pine.
					Loblolly pine	90	
					Longleaf pine	70	
Fuquay:							
FsB	3s	Slight	Moderate	Moderate	Loblolly pine	83	Slash pine, longleaf pine.
					Slash pine	83	
					Longleaf pine	67	
Grady:							
Gr	2w	Slight	Severe	Severe	Loblolly pine	90	Loblolly pine, slash pine, American sycamore, water tupelo.
					Slash pine	88	
					Sweetgum	90	
Johnston:							
Jo	1w	Slight	Severe	Severe	Loblolly pine	97	Loblolly pine, slash pine, baldcypress, yellow-poplar, sweetgum, green ash, water tupelo.
					Sweetgum	111	
					Water oak	103	
Lakeland:							
LaC	3s	Slight	Moderate	Moderate	Slash pine	80	Slash pine, loblolly pine.
					Loblolly pine	80	
					Loblolly pine	70	
Leefield:							
Le, Lu	3w	Slight	Moderate	Moderate	Loblolly pine	84	Loblolly pine, slash pine.
					Slash pine	84	
					Longleaf pine	70	
Lowndes:							
LwC	3s	Slight	Moderate	Moderate	Loblolly pine	80	Slash pine, loblolly pine.
					Slash pine	80	
					Longleaf pine	70	

See footnotes at end of table.

TABLE 7.—WOODLAND MANAGEMENT AND PRODUCTIVITY—Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Important trees	Potential productivity: Site index	Trees to plant
Mascotte:							
Mn	3w	Slight	Moderate	Moderate	Slash pine	80	Slash pine,
					Loblolly pine	80	loblolly pine.
					Longleaf pine	70	
Myatt:							
[1]MO:							
Myatt part	2w	Slight	Severe	Severe	Loblolly pine	95	Loblolly pine,
					Slash pine	92	slash pine.
					Sweetgum	92	
					Water oak	86	
Osier part	3w	Slight	Severe	Severe	Slash pine	80	Slash pine,
					Loblolly pine	80	loblolly pine.
					Longleaf pine	68	
Nankin:							
NkC	3o	Slight	Slight	Slight	Loblolly pine	80	Loblolly pine,
					Slash pine	80	slash pine.
					Longleaf pine	70	
Olustee:							
Oa	3w	Slight	Moderate	Moderate	Slash pine	80	Slash pine,
					Loblolly pine	80	loblolly pine.
					Longleaf pine	70	
Ousley:							
Ou	3w	Slight	Moderate	Moderate	Loblolly pine	80	Slash pine,
					Slash pine	80	loblolly pine.
					Longleaf pine	70	
Pelham:							
Pe	2w	Slight	Severe	Severe	Slash pine	90	Slash pine,
					Loblolly pine	90	loblolly pine.
					Longleaf pine	74	
					Sweetgum	80	
					Blackgum	80	
					Water oak	80	
Stilson:							
Se	3s	Slight	Moderate	Slight	Loblolly pine	83	Slash pine,
					Slash pine	83	loblolly pine,
					Longleaf pine	70	longleaf pine.
					Sweetgum	—	
Sunsweet:							
SuC2	3c	Slight	Moderate	Moderate	Loblolly pine	85	Loblolly pine,
					Slash pine	85	slash pine.
					Longleaf pine	70	
Tifton:							
TfA, TfB, TuB	2o	Slight	Slight	Slight	Loblolly pine	86	Loblolly pine,
					Slash pine	86	slash pine.
					Longleaf pine	68	
Valdosta:							
VaB	3s	Slight	Slight	Moderate	Loblolly pine	81	Slash pine,
					Slash pine	80	loblolly pine,
					Longleaf pine	70	longleaf pine.
Wahee:							
WA	2w	Slight	Moderate	Moderate	Loblolly pine	86	Loblolly pine,
					Slash pine	86	slash pine,
					Sweetgum	90	sweetgum,
							American sycamore,
							water oak.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 8.--BUILDING SITE DEVELOPMENT

["Cutbanks cave" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Albany:					
AdA	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
Bayboro:					
Bm	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Chipley:					
ChA	Severe: cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
Clarendon:					
Cn	Moderate: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, corrosive.	Slight.
Dasher:					
Da	Severe: wetness, excess humus, floods.	Severe: wetness, low strength, floods.	Severe: wetness, low strength, floods.	Severe: wetness, low strength, floods.	Severe: wetness, low strength, floods.
Dothan:					
DoB	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight.
Fuquay:					
FsB	Slight	Slight	Slight	Slight	Slight.
Grady:					
Gr	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Johnston:					
Jo	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Lakeland:					
LaC	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
Leefield:					
Le, Lu	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
Lowndes:					
LwC	Severe: slope, cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
Mascotte:					
Mn	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness, corrosive.	Severe: wetness.
Myatt:					
[1]MO:					
Myatt part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.

See footnote at end of table.

TABLE 8.—BUILDING SITE DEVELOPMENT—Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Myatt:					
Osier part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Nankin:					
NkC	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Slight.
Olustee:					
Oa	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness, corrosive.	Severe: wetness.
Ousley:					
Ou	Severe: floods, cutbanks cave.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Pelham:					
Pe	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Stilson:					
Se	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight.
Sunsweet:					
SuC2	Moderate: too clayey.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.	Moderate: slope.
Tifton:					
TfA, TfB, TuB	Slight	Slight	Slight	Slight	Slight.
Valdosta:					
VaB	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
Wahee:					
WA	Severe: wetness, floods, too clayey.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: floods, low strength.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 9.—SANITARY FACILITIES

["Percs slowly" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms used to rate soils. Absence of an entry means soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Albany:					
AdA	Severe: wetness.	Severe: seepage.	Severe: wetness.	Moderate: wetness.	Fair: too sandy.
Bayboro:					
Bm	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Chipley:					
ChA	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage.	Poor: too sandy, seepage.
Clarendon:					
Cn	Severe: percs slowly, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Good.
Dasher:					
Da	Severe: wetness, floods.	Severe: wetness, floods, excess humus.	Severe: wetness, seepage, floods.	Severe: wetness, seepage, floods.	Poor: wetness, seepage.
Dothan:					
DoB	Moderate: percs slowly.	Moderate: slope.	Severe: wetness.	Moderate: wetness.	Good.
Fuquay:					
FsB	Moderate: percs slowly.	Moderate: slope.	Slight	Slight	Good.
Grady:					
Gr	Severe: floods, percs slowly, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness, too clayey.
Johnston:					
Jo	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Lakeland:					
LaC	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, seepage.
Leefield:					
Le, Lu	Severe: wetness, percs slowly.	Moderate: wetness, seepage.	Severe: wetness.	Severe: wetness.	Good.
Lowndes:					
LwC	Moderate: percs slowly, slope.	Severe: slope, seepage.	Slight	Moderate: slope.	Fair: slope.
Mascotte:					
Mn	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: too sandy, seepage, wetness.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Myatt:					
[1]MO:					
Myatt part	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Osier part	Severe: floods, wetness.	Severe: floods, seepage.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness, too sandy.
Nankin: NkC	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Fair: too clayey.
Olustee: Oa	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: too sandy, seepage, wetness.
Ousley: Ou	Severe: floods, wetness.	Severe: floods, seepage.	Severe: floods, seepage.	Severe: floods, seepage.	Poor: too sandy.
Pelham: Pe	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Stilson: Se	Severe: wetness.	Moderate: seepage.	Moderate: wetness.	Slight	Good.
Sunsweet: SuC2	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
Tifton: TfA	Moderate: percs slowly.	Moderate: seepage.	Slight	Slight	Good.
TfB, TuB	Moderate: percs slowly.	Moderate: slope, seepage.	Slight	Slight	Good.
Valdosta: VaB	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
Wahee: WA	Severe: wetness, floods, percs slowly.	Slight	Severe: wetness, floods.	Severe: wetness, floods.	Poor: too clayey.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 10.—CONSTRUCTION MATERIALS

["Shrink-swell" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," and "unsuited." Absence of an entry means soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Albany:				
AdA	Fair: wetness.	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Bayboro:				
Bm	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Chipley:				
ChA	Good	Fair: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Clarendon:				
Cn	Good	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Dasher:				
Da	Poor: wetness, excess humus, low strength.	Unsuited: excess humus.	Unsuited: excess humus.	Poor: wetness.
Dothan:				
DoB	Good	Poor: excess fines.	Poor: excess fines.	Fair. too sandy.
Fuquay:				
FsB	Good	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Grady:				
Gr	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Johnston:				
Jo	Poor: wetness, excess humus.	Poor: excess fines.	Poor: excess fines.	Poor: wetness.
Lakeland:				
LaC	Good	Good	Unsuited: excess fines.	Poor: too sandy.
Leefield:				
Le, Lu	Fair: wetness.	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Lowndes:				
LwC	Good	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Mascotte:				
Mn	Good	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Myatt:				
[1]MO:				
Myatt part	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Osier part	Poor: wetness.	Fair: excess fines.	Unsuited: excess fines.	Poor: too sandy, wetness.

See footnote at end of table.

TABLE 10.—CONSTRUCTION MATERIALS—Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Nankin:				
NkC	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer, too clayey.
Olustee:				
Oa	Good	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Ousley:				
Ou	Good	Fair: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Pelham:				
Pe	Poor: wetness.	Poor: excess fines.	Poor: excess fines.	Poor: wetness.
Stilson:				
Se	Good	Poor: excess fines.	Poor: excess fines.	Poor: too sandy.
Sunsweet:				
SuC2	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Tifton:				
TfA, TfB, TuB	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
Valdosta:				
VaB	Good	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Wahee:				
WA	Poor: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer, area reclaim.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 11.--WATER MANAGEMENT

["Seepage" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not evaluated]

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Albany: AdA	Moderate: seepage.	Moderate: seepage.	Favorable	Fast intake	Favorable	Favorable.
Bayboro: Bm	Slight	Moderate: shrink-swell.	Percs slowly	Wetness	Not needed	Not needed.
Chipley: ChA	Severe: seepage.	Severe: seepage, piping, unstable fill.	Cutbanks cave	Fast intake	Not needed	Not needed.
Clarendon: Cn	Moderate: seepage.	Moderate: compressible, piping.	Favorable	Favorable	Not needed	Favorable.
Dasher: Da	Severe: seepage, excess humus.	Severe: seepage, excess humus, low strength.	Wetness, excess humus, floods.	Wetness, floods.	Not needed	Not needed.
Dothan: DoB	Slight	Slight	Not needed	Favorable	Favorable	Favorable.
Fuquay: FsB	Slight	Moderate: piping.	Not needed	Fast intake	Favorable	Favorable.
Grady: Gr	Moderate: seepage.	Slight	Floods, wetness, poor outlets.	Wetness, percs slowly, floods.	Not needed	Not needed.
Johnston: Jo	Severe: seepage.	Severe: piping.	Poor outlets, floods.	Wetness, floods.	Not needed	Not needed.
Lakeland: LaC	Severe: seepage.	Severe: seepage, piping.	Not needed	Droughty, seepage, fast intake.	Not needed	Not needed.
Leefield: Le, Lu	Moderate: seepage.	Moderate: seepage, piping.	Favorable	Fast intake	Not needed	Not needed.
Lowndes: LwC	Moderate: seepage.	Slight	Not needed	Slope, fast intake.	Too sandy, piping.	Droughty.
Mascotte: Mn	Moderate: seepage.	Moderate: seepage, unstable fill.	Wetness, cutbanks cave	Wetness, fast intake.	Not needed	Not needed.
Myatt: [1]MO: Myatt part	Moderate: seepage.	Moderate: low strength.	Favorable	Wetness, floods.	Not needed	Wetness.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Myatt:						
Osier part	Severe: seepage.	Severe: seepage, unstable fill.	Floods, cutbanks cave	Floods, seepage.	Not needed	Not needed.
Nankin:						
NkC	Moderate: seepage.	Slight	Not needed	Complex slope, percs slowly.	Favorable	Favorable.
Olustee:						
Oa	Moderate: seepage.	Moderate: seepage, unstable fill.	Wetness, cutbanks cave	Wetness, fast intake.	Not needed	Not needed.
Ousley:						
Ou	Severe: seepage.	Severe: seepage, piping.	Floods, cutbanks cave	Seepage, floods.	Not needed	Not needed.
Pelham:						
Pe	Moderate: seepage.	Moderate: piping.	Floods, wetness.	Floods, wetness.	Not needed	Not needed.
Stilson:						
Se	Moderate: seepage.	Moderate: seepage.	Favorable	Fast intake	Not needed	Not needed.
Sunsweet:						
SuC2	Slight	Moderate: hard to pack.	Not needed	Slope, slow intake.	Complex slope	Slope, erodes easily.
Tifton:						
TfA, TfB, TuB	Moderte: seepage.	Slight	Not needed	Favorable	Favorable	Favorable.
Valdosta:						
VaB	Severe: seepage.	Moderate: piping, seepage.	Not needed	Droughty, seepage, fast intake.	Too sandy	Erodes easily.
Wahee:						
WA	Slight	Moderate: compressible.	Percs slowly, wetness, floods.	Percs slowly, wetness, floods.	Not needed	Not needed.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 12.--RECREATIONAL DEVELOPMENT

["Percs slowly" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Albany: AdA	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
Bayboro: Bm	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Chipley: ChA	Severe: too sandy.	Severe: too sandy.	Severe: too sandy, soil blowing.	Severe: too sandy.
Clarendon: Cn	Moderate: wetness.	Slight	Moderate: wetness.	Slight.
Dasher: Da	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus, floods.
Dothan: DoB	Slight	Slight	Moderate: slope.	Slight.
Fuquay: FsB	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy, slope.	Moderate: too sandy.
Grady: Gr	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Johnston: Jo	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Lakeland: LaC	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
Leefield: Le, Lu	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
Lowndes: LwC	Moderate: too sandy, slope.	Moderate: too sandy, slope.	Severe: slope.	Moderate: too sandy.
Mascotte: Mn	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.	Severe: wetness.
Myatt: [1]MO:				
Myatt part	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.

See footnote at end of table.

TABLE 12.—RECREATIONAL DEVELOPMENT—Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Myatt:				
Osier part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Nankin:				
NkC	Slight	Slight	Moderate: slope.	Slight.
Olustee:				
Oa	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.	Severe: wetness.
Ousley:				
Ou	Severe: floods, too sandy.	Severe: too sandy.	Severe: floods, too sandy.	Severe: too sandy.
Pelham:				
Pe	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness.
Stilson:				
Se	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: too sandy.
Sunsweet:				
SuC2	Moderate: percs slowly.	Slight	Severe: slope.	Slight.
Tifton:				
TfA	Slight	Slight	Slight	Slight.
TfB, TuB	Slight	Slight	Moderate: slope.	Slight.
Valdosta:				
VaB	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy, slope.	Moderate: too sandy.
Wahee:				
WA	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 13.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates the soil was not rated]

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
Albany: AdA	Fair	Fair	Fair	Fair	Fair	---	Fair	Poor	Fair	Fair	Poor	---
Bayboro: Bm	Very poor.	Poor	Poor	Poor	Poor	---	Good	Good	Poor	Poor	Good	---
Chipley: ChA	Poor	Fair	Fair	Fair	Fair	---	Very poor.	Very poor.	Fair	Fair	Very poor.	---
Clarendon: Cn	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
Dasher: Da	Very poor.	Poor	Poor	Poor	Poor	---	Good	Good	Poor	Poor	Good	---
Dothan: DoB	Good	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
Fuquay: FsB	Fair	Fair	Good	Fair	Fair	---	Poor	Very poor.	Good	Fair	Very poor.	---
Grady: Gr	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good	---
Johnston: Jo	Very poor.	Poor	Poor	Poor	Poor	---	Good	Good	Poor	Poor	Good	---
Lakeland: LaC	Poor	Fair	Fair	Poor	Fair	---	Very poor.	Very poor.	Fair	Fair	Very poor.	---
Leefield: Le, Lu	Fair	Fair	Good	Fair	Fair	---	Fair	Fair	Fair	Fair	Fair	---
Lowndes: LwC	Fair	Fair	Good	Fair	Fair	---	Very poor.	Very poor.	Fair	Fair	Very poor.	---
Mascotte: Mn	Poor	Fair	Fair	Poor	Fair	---	Poor	Fair	Fair	Fair	Poor	---
Myatt: [1]MO:												
Myatt part	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good	---
Osier part	Very poor.	Poor	Fair	Fair	Fair	---	Fair	Good	Poor	Fair	Fair	---
Nankin: NkC	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
Olustee: Oa	Poor	Fair	Fair	Poor	Fair	---	Poor	Fair	Fair	Fair	Poor	---
Ousley: Ou	Poor	Fair	Good	Fair	Fair	---	Poor	Very poor.	Fair	Fair	Very poor.	---

See footnote at end of table.

TABLE 13.—WILDLIFE HABITAT POTENTIALS—Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for—			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
Pelham:												
Pe	Poor	Poor	Fair	Fair	Fair	---	Fair	Fair	Poor	Fair	Fair	---
Stilson:												
Se	Fair	Fair	Good	Fair	Fair	---	Poor	Poor	Fair	Fair	Poor	---
Sunsweet:												
SuC2	Fair	Good	Good	Fair	Fair	---	Very poor.	Very poor.	Good	Fair	Very poor.	---
Tifton:												
TfA	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
TfB, TuB	Good	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.	---
Valdosta:												
VaB	Poor	Fair	Fair	Fair	Fair	---	Very poor.	Very poor.	Fair	Fair	Very poor.	---
Wahee:												
WA.												

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means greater than. Absence of an entry means data were not estimated. NP means nonplastic]

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Albany:											
AdA	0-55	Sand, loamy sand	SM	A-2	0	100	100	75-90	12-23	---	NP
	55-65	Sandy loam	SM	A-2	0	100	100	75-92	22-30	---	NP
Bayboro:											
Bm	0-11	Loam	CL, ML	A-6, A-7	0	100	100	85-100	60-80	30-42	11-22
	11-65	Clay loam, sandy clay, clay.	CL, CH	A-7	0	100	100	85-100	55-90	41-70	20-40
Chipley:											
ChA	0-6	Sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
	6-80	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
Clarendon:											
Cn	0-8	Loamy sand	SM, SP-SM	A-2	0	98-100	95-100	65-90	10-30	<20	NP-3
	8-16	Sandy loam	SM, SC, SM-SC	A-2	0	98-100	95-100	70-95	20-35	<30	NP-10
	16-32	Sandy clay loam	SC, CL, SM-SC, CL-ML	A-4, A-6	0	98-100	95-100	75-95	36-55	20-40	5-15
	32-65	Sandy clay loam	SC, CL, SM-SC, CL-ML	A-2, A-4, A-6	0	99-100	98-100	80-95	30-55	20-40	5-15
Dasher:											
Da	0-75	Muck	Pt	---	0	---	---	---	---	---	NP
Dothan:											
DoB	0-9	Loamy sand	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
	9-65	Sandy clay loam, sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-90	23-45	<40	NP-15
Fuquay:											
FsB	0-24	Loamy sand	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-83	5-35	---	NP
	24-46	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4	0	85-100	85-100	60-80	23-45	<25	NP-13
	46-60	Sandy clay loam	SC, CL	A-2, A-4, A-6	0	95-100	90-100	60-93	28-55	15-49	8-23
Grady:											
Gr	0-6	Sandy loam	SM, ML, CL-ML, SM-SC	A-4, A-6	0	100	99-100	85-100	40-75	<30	NP-15
	6-10	Sandy clay loam, loam.	CL	A-6	0	100	100	90-100	51-80	25-40	11-20
	10-65	Clay, sandy clay	CL, ML, CH	A-6, A-7	0	100	100	90-100	55-90	30-50	12-25
Johnston:											
Jo	0-30	Loam, sandy loam	ML, CL, SM, SC	A-2, A-4	0	100	100	60-95	30-75	<35	NP-10
	30-50	Sandy loam	SM, SC, SM-SC	A-2, A-4	0	100	100	50-85	25-50	<35	NP-10
	50-65	Sand	SM, SP-SM	A-2, A-3	0	100	100	50-75	5-30	---	NP
Lakeland:											
LaC	0-80	Sand	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP

See footnote at end of table.

TABLE 14.—ENGINEERING PROPERTIES AND CLASSIFICATIONS—Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number—				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Leefield:											
Le, Lu	0-32	Loamy sand	SM, SW-SM	A-2	0	98-100	95-100	65-95	10-20	---	NP
	32-38	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	93-100	65-95	20-40	<40	NP-16
	38-65	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	95-100	65-85	20-40	<40	NP-20
Lowndes:											
LwC	0-30	Loamy sand	SM, SP-SM	A-2, A-3	0	95-100	90-100	70-90	8-20	---	NP
	30-40	Sandy loam, sandy clay loam.	SC, SM-SC	A-2, A-4, A-6	0	98-100	90-100	70-95	30-50	20-35	4-15
	40-48	Loamy sand, sand, sandy loam.	SP-SM, SM	A-2	0	95-100	90-100	65-95	10-25	---	NP
	48-65	Sandy clay loam, sandy clay.	CL, SC	A-4, A-6	0	98-100	90-100	80-95	36-65	25-40	7-20
	65-76	Sandy loam, loamy sand.	SM, SM-SC	A-2	0	95-100	90-100	65-95	13-30	<25	NP-7
Mascotte:											
Mn	0-15	Sand	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	15-26	Sand	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	8-15	---	NP
	26-32	Sand	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	32-65	Sandy clay loam, sandy loam.	SC, SM-SC	A-2, A-4, A-6	0	100	100	85-100	25-45	20-38	4-15
Myatt:											
[1]MO:											
Myatt part	0-15	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-2, A-4	0	95-100	95-100	70-100	30-90	<25	NP-5
	15-60	Sandy clay loam, clay loam, sandy loam.	SM, SC, ML, CL	A-6	0	95-100	95-100	80-100	40-80	<30	NP-10
Osier part	0-12	Sand	SP-SM	A-2, A-3	0	100	98-100	60-85	5-12	---	NP
	12-60	Sand	SP-SM, SM	A-2, A-3	0	100	95-100	65-90	5-20	---	NP
Nankin:											
NkC	0-8	Sandy loam	SM	A-2, A-6	0	95-100	90-100	70-90	13-30	---	NP
	8-30	Sandy clay, clay.	SC, CL	A-6, A-7	0	100	95-100	75-95	45-70	30-45	12-20
	30-65	Sandy clay loam, sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	98-100	95-100	70-85	25-55	<30	NP-12
Olustee:											
Oa	0-7	Sand	SP-SM, SM	A-3, A-2-4	0	100	100	75-100	5-15	---	NP
	7-15	Sand	SP-SM, SM	A-3, A-2-4	0	100	100	75-100	8-15	---	NP
	15-34	Sand	SP-SM, SM	A-3, A-2-4	0	100	100	75-100	5-15	---	NP
	34-65	Sandy clay loam, sandy loam,	SC	A-2, A-4, A-6	0	100	100	85-100	30-45	25-38	8-15

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
Ousley: Ou	0-17	Fine sand	SP-SM, SM	A-2, A-3	0	100	100	70-100	5-25	---	NP
	17-82	Sand, fine sand, coarse sand.	SP-SM, SM, SP	A-1, A-2, A-3	0	100	95-100	36-99	2-15	---	NP
Pelham: Pe	0-25	Loamy sand	SM	A-2	0	100	95-100	75-90	15-30	---	NP
	25-65	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	25-50	15-30	2-12
Stilson: Se	0-26	Loamy sand	SM	A-2	---	94-100	94-100	74-92	15-24	---	NP
	26-31	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-6, A-4	---	89-100	86-100	77-94	28-41	<29	NP-13
	31-65	Sandy loam, sandy clay loam.	SM, SC	A-2, A-6	---	96-100	95-100	70-99	30-50	<40	NP-20
Sunsweet: SuC2	0-3	Sandy loam	SM	A-2	0	80-100	55-92	45-90	17-30	---	NP
	3-15	Clay, sandy clay, sandy clay loam.	CL, SC	A-6, A-7, A-4	0	95-100	90-100	80-97	40-70	30-40	8-16
	15-60	Clay, sandy clay	CL	A-6, A-7	0	95-100	92-100	90-99	55-80	36-47	13-25
Tifton: TfA, TfB, TuB	0-8	Loamy sand	SM, SP-SM, SM-SC	A-2	0	70-95	62-89	53-85	11-27	<25	NP-5
	8-41	Sandy clay loam	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	70-95	65-89	60-81	33-53	22-40	5-20
	41-60	Sandy clay loam	SC, CL	A-2, A-6, A-7	0	87-100	80-99	70-94	34-55	24-45	11-21
Valdosta: VaB	0-10	Sand	SM, SP-SM	A-2	0	100	95-100	65-85	10-20	---	NP
	10-56	Loamy sand, loamy fine sand.	SM	A-2	0	100	95-100	65-90	13-25	---	NP
	56-99	Sand, loamy sand	SP-SM, SM	A-2, A-3	0	100	95-100	51-80	5-15	---	NP
Wahee: WA	0-9	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	95-100	50-85	30-50	<30	NP-7
	9-62	Clay, clay loam, sandy clay loam, sandy clay.	CL, CH, SM, SC	A-2, A-6, A-7	0	100	100	95-100	36-90	30-60	11-32

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means greater than. The erosion tolerance factor (T) is for the entire profile. Absence of an entry means data were not available or were not estimated]

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T
	In	In/hr	In/in	pH	Mmhos/cm					
Albany:										
AdA	0-55	6.0-20	0.02-0.04	4.5-5.5	<2	Low	Moderate	High	0.17	4
	55-65	2.0-6.0	0.08-0.10	4.5-5.5	<2	Low	Moderate	High	0.20	
Bayboro:										
Bm	0-11	0.6-2.0	0.15-0.20	4.5-5.5	<2	Low	High	High	---	---
	11-65	0.06-0.2	0.14-0.18	4.5-5.5	<2	Moderate	High	High	---	
Chipley:										
ChA	0-6	6.0-20	0.05-0.10	4.5-6.0	<2	Very low	Low	High	0.15	5
	6-80	6.0-20	0.03-0.08	4.5-6.0	<2	Very low	Low	High	---	
Clarendon:										
Cn	0-8	2.0-6.0	0.08-0.12	4.5-6.5	<2	Low	Moderate	High	0.15	5
	8-16	2.0-6.0	0.10-0.14	4.5-5.5	<2	Low	Moderate	High	0.15	
	16-32	0.6-2.0	0.10-0.15	4.5-5.5	<2	Low	Moderate	High	0.20	
	32-65	0.2-0.6	0.08-0.12	4.5-5.5	<2	Low	Moderate	High	0.15	
Dasher:										
Da	0-75	2.0-6.0	0.20-0.25	3.6-4.4	<2	Low	High	High	---	---
Dothan:										
DoB	0-9	2.0-6.0	0.06-0.10	4.5-5.5	<2	Very low	Moderate	Moderate	0.24	4
	9-65	0.2-2.0	0.10-0.14	4.5-5.5	<2	Low	Moderate	Moderate	0.20	
Fuquay:										
FsB	0-24	>6.0	0.04-0.09	4.5-5.5	<2	Low	Low	High	0.20	5
	24-46	0.6-2.0	0.12-0.15	4.5-5.5	<2	Low	Low	High	0.20	
	46-60	0.06-0.2	0.10-0.13	4.5-5.5	<2	Low	Low	High	0.20	
Grady:										
Gr	0-6	2.0-2.0	0.10-0.14	4.5-5.5	<2	Low	Moderate	High	---	---
	6-10	0.2-0.6	0.10-0.15	4.5-5.5	<2	Low	High	High	---	
	10-65	0.06-0.2	0.12-0.16	4.5-5.5	<2	Moderate	High	High	---	
Johnston:										
Jo	0-30	2.0-6.0	0.10-0.20	4.5-5.5	<2	Low	High	High	---	---
	30-50	6.0-20	0.06-0.12	4.5-5.5	<2	Low	High	High	---	
	50-65	6.0-20	0.02-0.07	4.5-5.5	<2	Low	High	High	---	
Lakeland:										
LaC	0-80	>20	0.05-0.08	5.1-6.0	<2	Very low	Low	Moderate	0.17	5
Leefield:										
Le, Lu	0-32	6.0-20	0.04-0.07	4.5-6.0	<2	Low	Low	Low	---	---
	32-38	0.6-2.0	0.10-0.13	4.5-5.0	<2	Low	Moderate	High	---	
	38-65	0.2-0.6	0.08-0.12	4.5-5.0	<2	Low	Moderate	High	---	
Lowndes:										
LwC	0-30	2.0-6.0	0.05-0.09	4.5-6.0	<2	Low	Low	High	0.15	5
	30-40	0.6-2.0	0.10-0.16	4.5-6.0	<2	Low	Low	High	0.24	
	40-48	2.0-20	0.05-0.09	4.5-6.0	<2	Low	Low	High	0.17	
	48-65	0.6-2.0	0.12-0.18	4.5-6.0	<2	Low	Moderate	High	0.28	
	65-76	2.0-6.0	0.03-0.09	4.5-6.0	<2	Low	Low	High	0.17	
Mascotte:										
Mn	0-15	6.0-20	0.03-0.08	4.5-5.5	<2	Very low	High	High	---	---
	15-26	0.6-2.0	0.10-0.15	4.5-5.5	<2	Very low	High	High	---	
	26-32	6.0-20	0.03-0.08	4.5-5.5	<2	Very low	High	High	---	
	32-65	0.6-2.0	0.10-0.15	4.5-5.5	<2	Low	High	High	---	

See footnote at end of table.

TABLE 15.—PHYSICAL AND CHEMICAL PROPERTIES OF SOILS—Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T
	In	In/hr	In/in	pH	Mmhos/cm					
Myatt:										
[1]MO:										
Myatt part	0-15	0.6-2.0	0.11-0.24	4.5-5.5	<2	Low	High	High	—	—
	15-60	0.2-2.0	0.10-0.20	4.5-5.5	<2	Low	High	High	—	
Osier part	0-12	6.0-20	0.03-0.10	4.5-6.0	<2	Low	High	High	—	—
	12-60	6.0-20	0.03-0.10	4.5-6.0	<2	Low	High	High	—	
Nankin:										
NkC	0-8	2.0-6.0	0.05-0.08	4.5-5.5	<2	Low	Low	High	0.28	3
	8-30	0.2-0.6	0.11-0.16	4.5-5.5	<2	Low	High	High	0.24	
	30-65	0.2-0.6	0.10-0.15	4.5-5.5	<2	Low	High	High	0.24	
Olustee:										
Oa	0-7	6.0-20	0.05-0.10	4.5-5.5	<2	Very low	High	High	—	—
	7-15	0.6-2.0	0.10-0.15	4.5-5.5	<2	Very low	High	High	—	
	15-34	6.0-20	0.03-0.08	4.5-5.5	<2	Very low	High	High	—	
	34-65	0.6-2.0	0.10-0.15	4.5-5.5	<2	Low	High	High	—	
Ousley:										
Ou	0-17	6.0-20	0.05-0.10	4.5-5.5	<2	Low	Low	High	0.15	5
	17-82	6.0-20	0.02-0.06	4.5-5.5	<2	Low	Low	High	0.15	
Pelham:										
Pe	0-25	6.0-20	0.05-0.08	4.5-5.5	<2	Very low	High	High	—	—
	25-65	0.6-2.0	0.10-0.13	4.5-5.5	<2	Low	High	High	—	
Stilson:										
Se	0-26	6.0-20	0.06-0.09	4.5-5.5	<2	Low	Low	High	0.17	5
	26-31	0.6-2.0	0.09-0.12	4.5-5.5	<2	Low	Moderate	High	0.24	
	31-65	0.6-2.0	0.08-0.10	4.5-5.5	<2	Low	Moderate	High	0.17	
Sunsweet:										
SuC2	0-3	2.0-6.0	0.09-0.12	4.5-5.5	<2	Low	Moderate	Moderate	0.32	2
	3-15	0.2-0.6	0.07-0.10	4.5-5.5	<2	Moderate	Moderate	Moderate	—	
	15-60	0.2-0.6	0.07-0.10	4.5-5.5	<2	Moderate	Moderate	Moderate	—	
Tifton:										
TfA, TfB, TuB	0-8	6.0-20	0.03-0.08	4.5-5.5	<2	Low	Low	Moderate	0.24	4
	8-41	0.6-2.0	0.12-0.15	4.5-5.5	<2	Low	Low	Moderate	—	
	41-60	0.6-2.0	0.10-0.13	4.5-5.5	<2	Low	Low	Moderate	—	
Valdosta:										
VaB	0-10	6.0-20	0.05-0.09	4.5-6.0	<2	Low	Moderate	High	0.17	5
	10-56	6.0-20	0.03-0.09	4.5-6.0	<2	Low	Moderate	High	0.17	
	56-99	6.0-20	0.03-0.07	4.5-6.0	<2	Low	Moderate	High	0.17	
Wahee:										
WA	0-9	0.6-2.0	0.10-0.15	4.5-5.5	<2	Low	Moderate	High	—	—
	9-62	0.06-0.2	0.12-0.20	4.5-5.5	<2	Low	High	High	—	

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 16.—SOIL AND WATER FEATURES

[Absence of an entry indicates the feature is not a concern. See text for descriptions of symbols and such terms as "rare," "brief," and "perched." The symbol > means greater than]

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Cemented pan	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hardness
					Ft			In		In	
Albany:											
AdA	C	Rare	—	—	1.0-2.5	Apparent	Dec-Mar	>60	—	—	—
Bayboro:											
Bm	D	Common	Brief	Dec-Mar	0-0.5	Apparent	Dec-Apr	>60	—	—	—
Chipley:											
ChA	C	None	—	—	2.0-3.0	Apparent	Dec-Mar	>60	—	—	—
Clarendon:											
Cn	C	None	—	—	1.5-2.5	Apparent	Dec-Mar	>60	—	—	—
Dasher:											
Da	D	Frequent	Very long	Nov-Aug	+3-0.5	Apparent	Nov-Aug	>60	—	—	—
Dothan:											
DoB	B	None	—	—	3.5-4.0	Perched	Jan-Apr	>60	—	—	—
Fuquay:											
FsB	B	None	—	—	2.5-4.0	Perched	Jan-Mar	>60	—	—	—
Grady:											
Gr	D	Frequent	Very long	Dec-Jun	+2-1.0	Swamp	Dec-Jun	>60	—	—	—
Johnston:											
Jo	D	Frequent	Long	Nov-Jul	+2-1.5	Swamp	Nov-Jun	>60	—	—	—
Lakeland:											
LaC	A	None	—	—	>6.0	—	—	>72	—	—	—
Leefield:											
Le, Lu	C	None	—	—	1.5-2.5	Apparent	Dec-Mar	>60	—	—	—
Lowndes:											
LwC	B	None	—	—	>6.0	—	—	>60	—	—	—
Mascotte:											
Mn	B/D	None	—	—	0-1.0	Apparent	Dec-Apr	>60	—	—	—
Myatt:											
[1]MO:											
Myatt part	D	Common	Brief	Nov-Mar	0-1.0	Apparent	Nov-Apr	>60	—	—	—
Osier part	D	Common	Brief	Dec-Apr	0-1.0	Apparent	Nov-Mar	>60	—	—	—
Nankin:											
NkC	C	None	—	—	>6.0	—	—	>60	—	—	—
Olustee:											
Oa	B/D	None	—	—	0-1.0	Apparent	Dec-Apr	>60	—	—	—
Ousley:											
Ou	C	Common	Brief	Dec-Apr	1.5-3.0	Apparent	Dec-May	>60	—	—	—
Pelham:											
Pe	B/D	Common	Brief	Dec-Mar	0.5-1.5	Apparent	Jan-Apr	>60	—	—	—
Stilson:											
Se	B	None	—	—	2.5-3.0	Perched	Dec-Apr	>60	—	—	—
Sunsweet:											
SuC2	C	None	—	—	>6.0	—	—	>60	—	—	—
Tifton:											
TfA, TfB, TuB	B	None	—	—	>6.0	—	—	>60	—	—	—

See footnote at end of table.

TABLE 16.—SOIL AND WATER FEATURES—Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Cemented pan	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hardness
					Ft			In		In	
Valdosta:											
VaB	A	None	—	—	>6.0	—	—	>60	—	—	—
Wahee:											
WA	D	Common	Brief	Dec-Mar	0-1.0	Apparent	Dec-Mar	>60	—	—	—

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 17.—ENGINEERING TEST DATA

[Tests were performed by the State Highway Department of Georgia. The tests, except those for volume change, were performed in accordance with standard test procedures of the American Association of State Highway and Transportation Officials (AASHTO). NP means nonplastic]

Soil name and location	Parent material	Georgia report no. S68-Ga-92	Depth from surface	Moisture density[1]: Maximum dry density	Moisture density[1]: Optimum moisture	Volume change[2]: Shrinkage	Volume change[2]: Swell	Volume change[2]: Total	Mechanical analysis[3] — Percentage passing sieve: No. 4	No. 10	No. 40	No. 200	Mechanical analysis[3] — Percentage smaller than—: 0.05 mm	0.02 mm	0.005 mm	0.002 mm	Liquid limit	Plasticity index	Classification: AASHTO[4]	Classification: Unified[5]
			In	Lbs/ft3	Pct	Pct	Pct	Pct									Pct			
Nankin loamy sand 300 feet south of junction of Park Avenue road and Riverside Road, east side of road on bank.	Marine deposits of reticulately mottled beds of sand and clay.	8-1	0-5	115	12	1.0	4.3	5.3	100	99	84	20	17	16	13	11	—	NP	A-2-4(0)	SM
		8-3	9-24	105	19	4.0	4.6	8.6	100	100	84	49	49	49	48	47	33	10	A-4(2)	SC
		8-4	24-59	113	13	0.5	1.4	1.9	100	100	72	30	30	29	29	29	32	9	A-2-4(0)	SC
Valdosta loamy sand 200 yards southeast of dam on Whiteriver Pond, .5 mile north of Brown's Pond.	Beds of marine fine sand over fine sandy loam in the lower part with residuum from the underlying limestone, which is usually phosphatic.	2-1	0-7	116	11	0.4	2.7	3.1	100	100	71	14	12	12	9	7	—	NP	A-2-4(0)	SM
		2-2	7-45	120	9	0.5	6.0	6.5	100	100	74	17	15	14	11	10	—	NP	A-2-4(0)	SM
		2-4	55-80+	111	11	0.0	1.9	1.9	100	100	73	9	7	6	5	4	—	NP	A-2-4(0)	SP-SM
Valdosta loamy sand 200 yards northwest of junction of Loch Laurel and Clyatteville-Lake Park Road in borrow pit.	Beds of unconsolidated sands and loamy sands, in places mixed with residuum from phosphatic limestone.	5-1	0-11	115	9	0.7	0.3	1.0	100	100	67	10	8	7	5	4	—	NP	A-2-4(0)	SP-SM
		5-2	11-58	119	7	0.4	4.0	4.4	100	100	71	13	12	10	8	7	—	NP	A-2-4(0)	SM
		5-4	66-100	113	8	0.0	1.0	1.0	100	100	62	8	6	5	3	3	—	NP	A-2-4(0)	SP-SM

[1]Based on AASHTO Designation T 99, Method A (2).

[2]Based on "A System of Soil Classification" by W.F. Abercrombie (1).

[3]Mechanical analyses according to the AASHTO Designation T 88 (2). 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 AASHTO procedure, the fine material is analyzed by the hydrometer method and the various grain-sized fractions are calculated on the basis of all the material, including that coarser than 2mm in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2mm 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 for soil.

[4]Based on AASHTO Designation M 145-49 (2).

[5]Based on the Unified soil classification system (3).

TABLE 18.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Albany	Loamy, siliceous, thermic Grossarenic Paleudults
Bayboro	Clayey, mixed, thermic Umbric Paleaquults
Chipley	Thermic, coated Aquic Quartzipsamments
Clarendon	Fine-loamy, siliceous, thermic Plinthaquic Paleudults
Dasher	Dysic, thermic Typic Medihemists
Dothan	Fine-loamy, siliceous, thermic Plinthic Paleudults
Fuquay	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Grady	Clayey, kaolinitic, thermic Typic Paleaquults
Johnston	Coarse-loamy, siliceous, acid, thermic Cumulic Humaquepts
Lakeland	Thermic, coated Typic Quartzipsamments
Leefield	Loamy, siliceous, thermic Arenic Plinthaquic Paleudults
Lowndes	Loamy, siliceous, thermic Arenic Paleudults
Mascotte	Sandy over loamy, siliceous, thermic Ultic Haplaquods
Myatt	Fine-loamy, siliceous, thermic Typic Ochraquults
Nankin	Clayey, kaolinitic, thermic Typic Hapludults
Olustee	Sandy over loamy, siliceous, thermic Ultic Haplaquods
Osier	Siliceous, thermic Typic Psammaquents
Ousley	Thermic, coated Aquic Quartzipsamments
Pelham	Loamy, siliceous, thermic Arenic Paleaquults
Stilson	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Sunsweet	Clayey, kaolinitic, thermic Plinthic Paleudults
Tifton	Fine-loamy, siliceous, thermic Plinthic Paleudults
Valdosta	Sandy, siliceous, thermic Psammentic Paleudults
Wahee	Clayey, mixed, thermic Aeric Ochraquults

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