United States
Department of

In cooperation with
the Louisiana Agricultural

Soil Survey of

How To Use This Soil Survey

General Soil Map

The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1986. Soil names and descriptions were approved in 1986. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1986. This soil survey was made cooperatively by the Soil Conservation Service, the Louisiana Agricultural Experiment Station, and the Louisiana Soil and Water Conservation Committee. It is part of the technical assistance furnished to the Dougdemona and the Boeuf River Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Cover: Pine seedlings are grown for local use by the Office of Forestry, Louisiana Department of Natural Resources, at the Columbia Nursery in Caldwell Parish. These seedlings are in irrigated areas of Rilla silt loam and Sterlington silt loam.

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Foreword

This soil survey contains information that can be used in land-planning programs in Caldwell Parish. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to 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 soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

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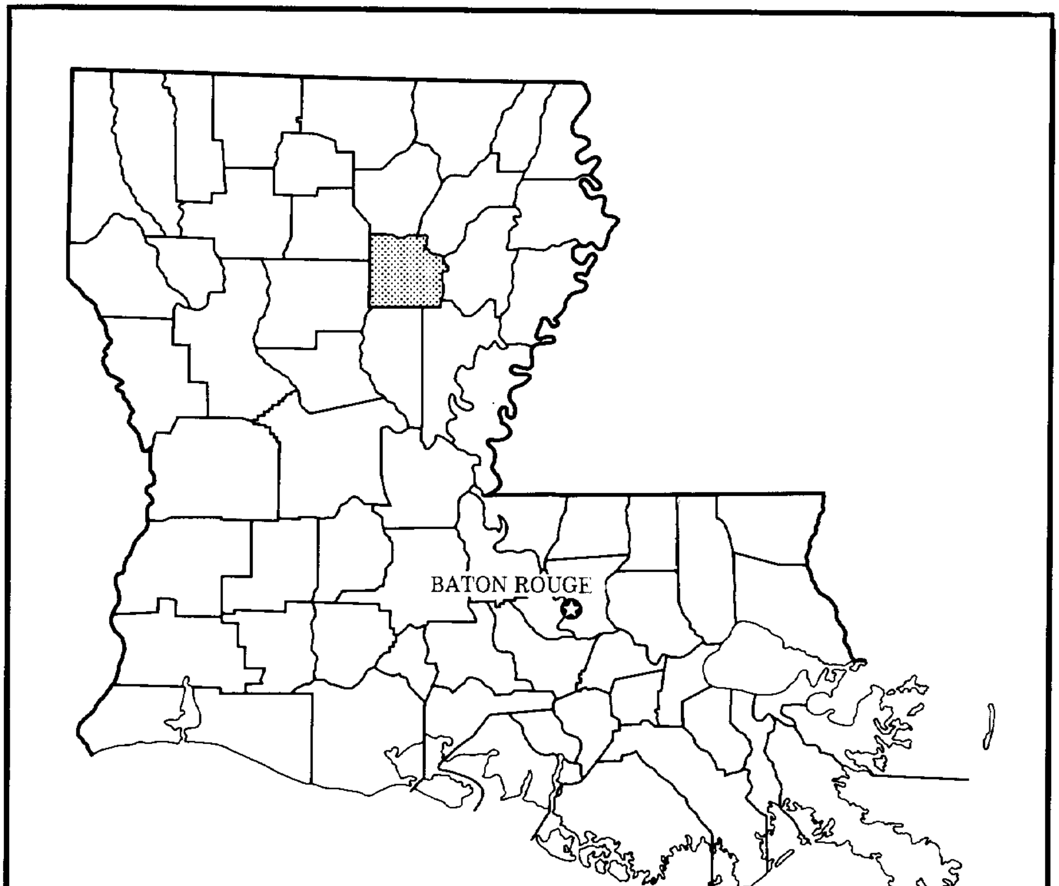

Location of Caldwell Parish in Louisiana.

Soil Survey of
Caldwell Parish, Louisiana

By William H. Boyd, Soil Conservation Service

Fieldwork by William H. Boyd and Gail Bowdan, Soil Conservation Service, and
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United States Department of Agriculture, Soil Conservation Service

In winter the average temperature is 47 degrees F, and the average daily minimum temperature is 34 degrees. The lowest temperature on record, which occurred at Chatham on February 2, 1951, is -7 degrees. In summer the average temperature is 80 degrees, and the average daily maximum temperature is 93 degrees. The highest recorded temperature, which occurred at Chatham on August 13, 1962, is 107 degrees.

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

The total annual precipitation is 50 inches. Of this, 25 inches, or 50 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 19 inches. The heaviest 1-day rainfall during the period of record was 7.83 inches at Chatham on February 10, 1966. Thunderstorms occur on about 54 days each year, and most occur in summer.

The average seasonal snowfall is 1 inch. The greatest snow depth at any one time during the period of record was 5 inches. On the average, there is seldom a day with as much as 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 70 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 11 miles per hour, in spring.

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

History and Development

Caldwell Parish was established as a political unit in March 1838, when it was formed from parts of Ouachita and Catahoula Parishes. It is thought to be named after a prominent Ouachita Parish family. All of the land on the east side of the Ouachita River was taken from the southern part of Ouachita Parish, and all the land on the west side of the river was taken from Catahoula Parish.

Several French settlements were in the area of the parish east of the Ouachita River but ceased to exist after the Natchez Massacre in 1729. The earliest permanent settlement, Copenhagen, was established by a man of Danish origin. Later, people of French descent from southern Louisiana settled along the Ouachita River, and Anglo-Saxon settlers from Georgia, Alabama, the Carolinas, and Mississippi settled in the upland areas of the parish.

Columbia was among the first settlements in the parish and was used as early as 1823 as a fording place on the Ouachita River. From the middle of the 1800's to early in the 1900's, Columbia vied in importance with Monroe as a river port and trading center. Columbia was an important shipping point until the railroads came into the region. Three miles west of Columbia, a bear hunter named Banks founded a small settlement now known as Banks Springs. The names of other long-forgotten communities, represented by a house or a store, appear on early maps.

Agriculture

Caldwell Parish has always been an agricultural parish. The early settlers grew a variety of crops and raised livestock for subsistence. Indigo was the first cash crop grown by the early settlers, and later, cotton became the main cash crop. Cotton was grown entirely in the upland areas of the parish. Cotton is still the major crop, but now it is grown entirely on the more fertile soils on the bottom lands. In 1983, about 11,342 acres of cotton, valued at over 7 million dollars, was harvested.

Large areas of bottom land hardwoods have been cleared for cropland in the last 20 years. Soybeans have been the main crop. About 16,000 acres, with a crop value of over 2 million dollars, was planted to soybeans in 1983. Other important crops include grain sorghum, wheat, and rice. A variety of horticultural crops are grown in home gardens.

In 1983, the total value of agricultural products produced in Caldwell Parish was over 27 million dollars. Of this total, 41 percent was from farm crops, 4 percent from livestock, and 55 percent from forest products.

The present trend in agriculture in Caldwell Parish is toward fewer and larger farm units. Clearing land for soybean production has essentially ceased, and many acres recently cleared for crop production are not being

composed of numerous sandy zones that can act as individual aquifers.

The Mississippi River alluvial aquifer is east of the Ouachita River. It is overlain by a thin deposit of Holocene age alluvial deposits. The aquifer ranges in thickness from less than 60 feet to about 110 feet.

The altitude of its base ranges from near mean sea level to 50 feet. The average well in this alluvial aquifer is constructed to yield less than 3,000 gallons per minute. The water generally is moderately hard to very hard (equivalent calcium carbonate concentration of 90 to 1,000 milligrams per liter) and has high concentrations of iron (3 to 25 milligrams per liter) and manganese (0.6 to 1.4 milligrams per liter). The water is predominantly a calcium bicarbonate type with a pH of 6.8 to 7.1. Its temperature is 66 or 67 degrees Fahrenheit. Chloride content ranges from 11 to 4,100 milligrams per liter (less than 250 milligrams per liter is considered to be freshwater). Chloride concentrations generally are less than 30 milligrams per liter in the upper part of the aquifer and less than 100 milligrams per liter in the lower part.

Treatment generally is necessary for domestic, municipal, and industrial uses. More water is used for irrigation than for all other uses combined.

Freshwater can be obtained from the Cockfield Formation throughout Caldwell Parish. This formation

milligrams per liter hardness as calcium carbonate, and a pH of 7.3 *(14, 26)*.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; and the kinds of crops and native plants growing on the soils. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material from which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, the landforms, relief, climate, and the natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on

area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit 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 can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or a building or other

because of changes in soil series concepts, differences in map unit design, and changes in soil patterns near survey area boundaries.

The general soil map units in this survey have been grouped into two general landscapes. Descriptions of each of the broad groups and the map units in each group follow.

Soils on Flood Plains

This group of map units consists of poorly drained, somewhat poorly drained, and well drained, level and gently undulating, clayey and loamy soils. The four map units in this group make up about 42 percent of the parish. Most of the acreage is in cultivated crops or woodland. Wetness and the hazard of flooding are the material is gray, slightly acid clay. The soils are subject to frequent flooding and have a high water table in the winter and spring.

Of minor extent are the well drained to poorly drained Arents soils, the somewhat poorly drained Hebert soils, the poorly drained Portland soils, and the very poorly drained Yorktown soils. Arents are on spoil banks. The Hebert soils are on low ridges and in intermediate positions on natural levees. The Portland soils are in low positions on natural levees, and the Yorktown soils are in abandoned stream channels on flood plains.

Most of the acreage of these soils has been cleared and used for crops, mainly soybeans. Grain sorghum and rice also are grown. The remaining acreage is in pasture or in woodland that is used for grazing, timber production, and habitat for wildlife.

The soils in this map unit are poorly suited to crops and somewhat poorly suited to pasture. Soils that are frequently flooded are poorly suited to both crops and pasture. Poor tilth and wetness are the main limitations, and flooding is a hazard. In some years, floodwaters do not recede in time to plant a crop. Surface drainage systems and flood protection are needed.

These soils are moderately well suited to woodland. The dominant trees are Nuttall oak, overcup oak, water oak, eastern cottonwood, American sycamore, green ash, and sweetgum. Equipment use limitations caused by wetness and flooding are the main concerns in management.

The soils in this map unit are poorly suited to sanitary facilities and building site development. Areas subject to occasional or frequent flooding generally are not suitable for homesites. Wetness, very slow permeability, and very high shrink-swell potential are the main limitations. Flooding is a hazard, but it can be controlled by major flood control structures.

2. Perry-Hebert

Level and gently undulating, poorly drained and somewhat poorly drained soils that have a clayey or loamy surface layer and subsoil

This map unit consists of soils in broad, level areas and in gently undulating areas on flood plains. Most of the soils in this map unit are subject to rare or occasional flooding; some are protected from flooding. Slopes range from 0 to 3 percent.

This map unit makes up about 11 percent of the

layer is brown, slightly acid or medium acid silt loam or silty clay loam. The subsoil is light brownish gray and pale brown, medium acid clay loam and silt loam in the upper part and reddish brown, strongly acid and medium acid silty clay loam and silt loam in the lower part. The soils have a high water table in winter and spring.

The Perry soils are in low positions on natural levees. The surface layer is dark grayish brown or gray, very strongly acid to medium acid clay or silty clay loam. The subsoil is gray, very strongly acid or strongly acid clay in the upper part and reddish brown, moderately alkaline clay in the lower part. The soils have a high water table in winter and spring.

Of minor extent are the well drained Sterlington and Rilla soils in high positions on natural levees and the poorly drained Yorktown soils in abandoned river channels.

Most of the acreage of these soils has been cleared and used for crops, mainly soybeans. Cotton, corn, wheat, and grain sorghum are also grown. The remaining acreage is in pasture or mixed hardwoods and is used for grazing, timber production, and habitat for wildlife.

The soils in this map unit are moderately well suited to crops and pasture. Wetness and poor tilth are the main limitations, and flooding is a hazard. A surface drainage system and fertilizer are needed for crop production. The occasionally flooded soils need protection from flooding in the spring.

The soils in this map unit are well suited to production of southern hardwoods. The dominant trees are cherrybark oak, Nuttall oak, water oak, eastern cottonwood, American sycamore, pecan, and sweetgum. Wetness is a moderate to severe limitation affecting the use of equipment.

The soils in this map unit are poorly suited to sanitary facilities and building site development. Wetness and the hazard of flooding are the main limitations. Moderate and very high shrink-swell potential is an additional limitation affecting dwellings.

3. Hebert-Rilla

Level and gently undulating, somewhat poorly drained and well drained soils that have a loamy surface layer and subsoil

This map unit consists of soils in broad, level areas parish. It is about 61 percent Hebert soils, 30 percent Rilla soils, and 9 percent soils of minor extent.

The somewhat poorly drained Hebert soils are in

subsurface layer is grayish brown and light brownish gray, extremely acid silt loam. The subsoil is grayish brown, light brownish gray, and brown, very strongly range from 5 to 15 percent on the ridgetops and from 15 to 60 percent on the side slopes.

This map unit makes up about 5 percent of the parish. It is about 60 percent Olla soils, 24 percent Cadeville soils, and 16 percent soils of minor extent.

The Olla soils are well drained and are on side slopes. The surface layer is brown, extremely acid, fine sandy loam. The subsoil is strong brown sandy clay loam and yellowish brown and light yellowish brown fine sandy loam. The subsoil is very strongly acid.

The Cadeville soils are moderately well drained and are on side slopes and narrow ridgetops. The surface layer is dark brown, medium acid very fine sandy loam. The subsoil is yellowish red and light brownish gray, extremely acid clay.

Savannah soils, and 25 percent soils of minor extent.

The Sacul soils are gently sloping and moderately sloping. They have a surface layer of dark grayish brown, strongly acid fine sandy loam. The subsoil is red, very strongly acid clay in the upper part and light brownish gray, very strongly acid sandy clay loam in the lower part. The soils have a seasonal high water table in winter and spring.

The Savannah soils are gently sloping. They have a surface layer of brown, very strongly acid fine sandy loam. The subsoil is strong brown, strongly acid sandy clay loam and yellowish brown loam in the upper part. A fragipan of yellowish brown, strongly acid loam is in the lower part. The soils have a seasonal high water table perched on the fragipan in winter and spring.

soils on narrow flood plains. The soils on flood plains are subject to frequent flooding. Slopes range from 0 to 2 percent.

This map unit makes up about 7 percent of the parish. It is about 66 percent Falkner soils, 15 percent Guyton soils, and 19 percent soils of minor extent.

The Falkner soils are nearly level and somewhat poorly drained. They are on uplands and stream terraces. The surface layer is brown, very strongly acid silt loam. The subsoil is yellowish brown, extremely acid or very strongly acid silty clay loam in the upper part. It is mottled light brownish gray, yellowish brown, and brownish yellow, extremely acid or very strongly acid clay in the lower part. The soils have a high water table

8. Frizzell-Providence

Nearly level and gently sloping, moderately well drained soils that have a loamy surface layer and subsoil; on stream terraces and uplands

This map unit consists of nearly level and gently sloping soils on low stream terraces and uplands. Slopes range from 0 to 5 percent.

This map unit makes up about 8 percent of the parish. It is about 62 percent Frizzell soils, 23 percent Providence soils, and 15 percent soils of minor extent.

The Frizzell soils are nearly level and are on low stream terraces. The surface layer is brown, very strongly acid silt loam. The upper part of the subsoil is

This map unit consists of moderately sloping to steep soils on hilly uplands. Slopes range from 3 to 40 percent.

This map unit makes up about 4 percent of the parish. It is about 88 percent Bayoudan soils and 12 percent soils of minor extent.

The Bayoudan soils have a surface layer of dark brown or very dark grayish brown, medium acid or very strongly acid clay. The subsoil is strong brown, extremely acid clay in the upper part and light olive brown, yellowish brown, olive, and grayish brown, extremely acid and slightly acid clay in the lower part.

Of minor extent are poorly drained Guyton soils and well drained Ouachita soils on narrow flood plains and somewhat poorly drained Falkner soils and moderately well drained Tippah soils on ridgetops.

Most of the acreage of these soils is woodland that is used for timber production and habitat for wildlife.

The soils in this map unit are moderately well suited to woodland. The main limitations are steep slopes and the clay surface layer. Landslides are a potential hazard in steeply sloping areas.

These soils generally are not suited to crops and they are poorly suited to pasture, mainly because of steep slopes and the severe hazard of erosion.

The soils in this map unit are poorly suited to sanitary facilities and building site development. The main limitations are steepness of slope and the very high shrink-swell potential. Landslides are a hazard in steeply sloping areas.

These soils have good potential for the development of habitat for woodland wildlife.

Broad Land Use Considerations

The soils in Caldwell Parish vary widely in their [illegible]

land is used for cultivated crops, mainly cotton and soybeans. Cultivated crops are a major land use in general soil map units 2 and 3.

The soils in general soil map units 2 and 3 are mostly loamy, have high or medium fertility, and are well suited to most crops. The main soils in these map units are Hebert, Rilla, and Perry soils. Perry soils are somewhat poorly suited to crops. Wetness is the main limitation affecting cultivation. Perry soils also have poor tilth, and flooding is a hazard.

Pastureland is a common land use in general soil map units 2, 3, 6, 7, and 8. The soils in these map units are well suited to pasture. Seasonal wetness is the main limitation. Soils in general soil map units 1, 4, 5, and 9 are poorly suited to pasture, mainly because of steep slopes and the hazard of erosion in general soil map units 5 and 9 and the hazard of flooding in general soil map units 1 and 4.

About 74 percent of the parish is woodland. The soils in general soil map units 4, 5, 6, 7, 8, and 9 are used mainly for timber production. Steepness of slope is the main limitation in general soil map units 5 and 9. Wetness of the soils is the main limitation in general soil map unit 4, and flooding is a hazard. Limitations in the use of equipment, caused by seasonal wetness, is the main concern in general soil map units 6, 7, and 8.

About 3,000 acres in the parish is urban or built-up areas. The major soils in each of the general soil map units have severe limitations affecting one or more urban uses and generally are poorly suited to urban development. Wetness is the main limitation affecting urban uses in general soil map units 1, 2, and 4, and flooding is a hazard. Steepness of slope is the main limitation in general soil map units 5 and 9. Wetness, low strength as it affects roads, restricted soil permeability, and the shrink-swell potential are the main [illegible]

Detailed Soil Map Units

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

Each map unit on the detailed soil maps represents

unit on the maps. Because of present or anticipated soil uses in the survey area, it was not considered practical or necessary to map the soils separately. The pattern and relative proportion of the soils are somewhat similar. Brimstone-Prentiss association, 0 to 3 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made

Ar—Alligator clay, frequently flooded. This level, poorly drained soil is in low positions on broad flats and in depressional areas on flood plains. The areas are irregular in shape and range from 40 to 1,000 acres or more. Slopes are less than 1 percent.

Typically, this soil has a dark grayish brown, very strongly acid clay surface layer about 4 inches thick. The subsoil to a depth of 40 inches is gray, mottled, very strongly acid clay. The substratum to a depth of about 60 inches is gray, mottled, slightly acid clay.

Included with this soil in mapping are a few small areas of Perry soils. Perry soils are in slightly higher positions than the Alligator soil and have a subsoil that is reddish brown in the lower part. Also included are small areas of Alligator soils that are subject to only occasional flooding. The included soils make up about 10 percent of the map unit.

Water and air move through this Alligator soil at a very slow rate, and water runs very slowly off the surface. This soil has medium fertility. A seasonal high water table is about 0.5 to 2.0 feet below the surface from January through April. This soil is subject to brief to very long periods of flooding during the same period. Floodwaters typically are 1 to 8 feet deep, exceeding 15 feet in places. Flood duration can exceed 60 days. This soil dries slowly and has very high shrink-swell potential.

Most of this soil is within the Boeuf Wildlife Management Area and is used as woodland and wildlife habitat. A small acreage is cropland.

This soil is somewhat poorly suited to woodland

bermudagrass and native grasses that are tolerant of frequent overflow. Applying high rates of fertilizer or lime on pastures generally is not practical because of the hazard of frequent overflow.

This soil is moderately well suited to habitat for woodland wildlife and is well suited to wetland wildlife. Habitat for all types of wildlife can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by promoting the natural establishment of desirable plants. Habitat for wetland wildlife can be improved by constructing shallow ponds to provide open-water areas for waterfowl and furbearers, such as muskrat, nutria, and mink.

This soil is not suited to urban development. The hazard of flooding generally is too severe, and major flood control structures and extensive local drainage systems are needed. In addition, wetness, very slow permeability, low strength as it affects roads, and very high shrink-swell potential are limitations.

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

At—Arents, loamy and clayey. These well drained to poorly drained soils are in areas of spoil material along the Boeuf River and Lafourche Canal. The soils are variable, loamy and clayey material that was dredged and deposited as spoil during the construction of the Lafourche Canal and during channel improvement work on the Boeuf River. The soils in low positions are subject to flooding. The landscape is long, narrow ridges that are 200 to 400 feet wide and 10 to

positions on the landscape than the Bayoudan soil and

very hard when dry, and it becomes cloddy if tilled

Included with this soil in mapping are a few small areas of Falkner and Tippah soils. Falkner and Tippah soils are on ridgetops at higher elevations and have a subsoil that is loamy in the upper part. Also included are small areas of soils that are similar to the Bayoudan soil except that they are alkaline and have numerous concretions of carbonates and fossils in the surface layer. Areas of these soils are indicated on the maps by a special symbol. The included soils make up about 10 percent of the map unit.

Water and air move through this Bayoudan soil at a very slow rate. Runoff is rapid or very rapid, and the hazard of erosion is very severe. Fertility is low. Plants generally are damaged by a lack of water during dry periods in summer and fall of some years. The surface

building foundations and high maintenance costs for repairs of roads, streets, and pipelines should be expected.

This Bayoudan soil is in capability subclass VIIe. The woodland ordination symbol is 8C.

BR—Brimstone-Prentiss association, 0 to 3 percent slopes. The poorly drained Brimstone soil and the moderately well drained Prentiss soil are on low stream terraces. The landscape is low, convex ridges and narrow flats and concave swales. The Brimstone soil is on flats and in concave positions, and the Prentiss soil is on low, convex ridges. Fewer observations were made than in other map units. The detail in mapping, however, is adequate for the

the subsoil is a fragipan that is yellowish brown, mottled, strongly acid loam. The substratum to a depth of about 84 inches is very strongly acid, stratified, yellowish brown loam and light brownish gray very fine sandy loam.

Water and air move through the upper part of the Prentiss soil at a moderate rate and through the lower part at a moderately slow rate. Water runs off the surface at a medium rate. This soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to crops. A seasonal high water table is perched on the fragipan at a depth of about 2.0 to 2.5 feet from January through March. Plants generally are damaged by a lack of water during dry periods in summer and fall of some years. This soil has low shrink-swell potential.

Included with these soils in mapping are a few small areas of Cahaba, Frizzell, and Guyton soils. Cahaba

affects roads. In addition, flooding is a hazard, and major flood control structures, along with extensive local drainage systems, are needed. Excess water can be removed by using shallow ditches and providing the proper grade for drainage. Roads should be designed to offset the limited ability of the Brimstone soil to support a load. Septic tank absorption fields do not function properly during rainy periods because of wetness and slow and moderately slow permeability. Lagoons or self-contained sewage disposal units can be used to dispose of sewage properly.

The soils in this map unit are somewhat poorly suited to cultivated crops, mainly because of wetness and concentrations of sodium salts in the Brimstone soil and low fertility and potentially toxic levels of exchangeable aluminum in the Prentiss soil. Drainage is needed if the Brimstone soil is used as cropland. Suitable crops are corn, soybeans, and grain sorghum. Fertilizer and lime strongly acid fine sandy loam in the lower part. The substratum to a depth of about 62 inches is yellowish brown, very strongly acid fine sandy loam.

Included with this soil in mapping are a few small areas of Frizzell and Prentiss soils that are in slightly lower positions than the Cahaba soil. Frizzell soils have a brownish subsoil that has less clay than the subsoil of the Cahaba soil and less sand that is coarser than fine sand. Prentiss soils have a fragipan. Also included are small areas of soils similar to the Cahaba soil except that they have a brownish subsoil. The included soils make up about 15 percent of the map unit.

Water and air move through this Cahaba soil at a moderate rate, and water runs off the surface at a medium rate. This soil has low fertility. Plants generally are damaged by a lack of water during dry periods in summer and fall of some years. This soil dries quickly after rains, and the shrink-swell potential is low.

Most of this soil is used as woodland. A small acreage is used as cropland, pastureland, or homesites.

This soil is well suited to woodland and has few

and revegetating disturbed areas around construction sites as soon as possible help to control erosion.

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

Fa—Falkner silt loam. This somewhat poorly drained, nearly level soil is on broad, convex ridgetops on uplands and is also on stream terraces. The areas are irregular in shape and range from 10 to several hundred acres. Slopes range from 0 to 2 percent.

Typically, this soil has a brown, very strongly acid silt loam surface layer about 5 inches thick. The subsoil extends to a depth of about 63 inches. It is yellowish brown, mottled, extremely acid and very strongly acid silty clay loam in the upper part; mottled light brownish gray and yellowish brown, extremely acid and very strongly acid clay in the middle part; and brownish yellow, medium acid clay in the lower part.

Included with this soil in mapping are a few small areas of Bayoudan, Cadeville, Guyton, Providence, and Tippah soils. Bayoudan and Cadeville soils are on side causes rutting and soil compaction, which can reduce the productivity of the soil.

This soil is well suited to cultivated crops. Soybeans is the main crop, but cotton, grain sorghum, and corn also are grown. This soil is limited mainly by wetness, by only medium fertility, and by potentially toxic levels of exchangeable aluminum in the root zone. It is friable and easy to keep in good tilth and can be worked throughout a wide range of moisture content. Land grading and smoothing can improve surface drainage and permit more efficient use of farm equipment. A tillage pan can form where cultivation is excessive. It can be broken up by subsoiling when the soil is dry. Maintaining crop residue on or near the surface reduces runoff and helps to maintain soil tilth and organic matter content. Most crops respond well to additions of fertilizer and lime, which can improve fertility and reduce the level of exchangeable aluminum. Practices that can be used to control erosion include early fall seeding, conservation tillage, and construction of terraces, diversions, and grassed waterways.

This soil is well suited to pasture. The main limitations are seasonal wetness and only medium fertility. Suitable pasture plants are improved bermudagrass, bahiagrass, ryegrass, white clover, winterpeas, and common bermudagrass. When this soil is wet, grazing results in puddling and in damage to the plant community. Excess water on the surface can be removed by using shallow drains and providing the proper grade for drainage. Seedbed preparation should be on the contour or across the slope where practical. Fertilizer and lime are needed for optimum production of forage. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and soil in good condition.

This soil is poorly suited to urban development. The main limitations are wetness, low strength as it affects roads, slow permeability, and high shrink-swell potential. Buildings and roads should be designed to

rotated among several small tracts of land can increase the amount of palatable deer browse and seed-producing plants for quail and turkey.

This Falkner soil is in capability subclass IIw. The woodland ordination symbol is 8W.

Fe—Forestdale silty clay loam, occasionally flooded. This level, poorly drained soil is in intermediate positions on low stream terraces. The areas generally are long and narrow and range from 10 to 150 acres. Slopes are long and smooth and generally are less than 1 percent.

Typically, this soil has a very dark grayish brown, very strongly acid silty clay loam surface layer about 4 inches thick. The subsoil extends to a depth of about 87 inches. It is gray and light brownish gray, mottled, very strongly acid clay in the upper part; brown, mottled, very strongly acid and slightly acid clay loam in the middle part; and brown, mottled, neutral sandy clay loam in the lower part.

Included with this soil in mapping are a few small areas of Alligator and Perry soils and soils similar to the Forestdale soil except that they have a clay surface layer. The Alligator and Perry soils are in lower positions than the Forestdale soil, and they have more clay in the subsoil. The included soils make up about 10 percent of the map unit.

Water and air move through this Forestdale soil at a very slow rate. This soil has medium fertility and a moderately high level of exchangeable aluminum that is potentially toxic to crops. A seasonal high water table is about 0.5 to 2.0 feet below the surface from January through April. Adequate water is available to plants in most years. This soil is subject to brief to very long periods of flooding from January through April. Floodwaters typically are 1 to 5 feet deep, and the depth exceeds 5 feet in places. Flood duration may exceed 45 days. The surface layer remains wet for long periods after heavy rains. The shrink-swell potential is overcome by using special equipment during wet periods or by logging during the drier periods. In addition, planting only water-tolerant trees on bedded rows helps to increase seedling survival and hasten reforestation.

fine sandy loam in the upper part, yellowish brown and light gray silt loam in the middle part, and yellowish brown silty clay loam and loam in the lower part. The subsoil is mottled throughout, and it is very strongly acid or strongly acid.

subsoil. Cahaba and Savannah soils are in positions similar to those of the Providence soil. Cahaba soils have a reddish subsoil and do not have a fragipan. Savannah soils are similar to the Providence soil except they have more sand in the upper part of the subsoil. The included soils make up about 16 percent of the map unit.

These Frizzell, Guyton, and Providence soils are used mainly as woodland, but in some areas they are used for homesites or pasture.

These soils are well suited to woodland. The potential for the production of loblolly pine is high. The main concern in producing and harvesting timber is wetness that limits use of equipment and causes severe seedling mortality in areas of the Guyton soil. Conventional methods of harvesting timber generally

reduces runoff and erosion. Most crops respond well to additions of lime and fertilizer, which improve fertility and reduce the levels of exchangeable aluminum within the root zone.

These soils are well suited to pasture. Wetness and low and medium fertility are the main limitations. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, white clover, and winterpea. Fertilizer is needed for optimum growth of grasses and legumes.

The Frizzell and Providence soils in this map unit are in capability subclass IIw. The Guyton soil is in capability subclass IIIw. The woodland ordination symbol is 9W for all the soils.

Go—Gallion silt loam. This level, well drained soil is vegetables also are grown. This soil is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. A tillage pan can form as a result of excessive cultivation, but it can be broken

acid and very strongly acid clay in the upper and middle parts and brown, mottled, neutral silty clay in the lower part.

Included with this soil in mapping are a few small

This soil is moderately well suited to woodland. If it is used to produce timber, equipment use limitations are moderate because of the clay subsoil. Loblolly pine is a suitable tree to plant.

This soil is poorly suited to urban development and to homesites. The main limitations are low strength as it affects roads, very slow permeability, and the high shrink-swell potential. Roads should be designed to offset the limited ability of the soil to support a load. Lagoons or self-contained sewage disposal units can be

slowly after heavy rains, and the shrink-swell potential is low.

Typically, the Ouachita soil has a brown, very strongly acid silt loam surface layer about 7 inches thick. The subsoil to a depth of about 65 inches is yellowish brown, very strongly acid silt loam in the upper and middle parts and pale brown, mottled, strongly acid silt loam in the lower part. The substratum to a depth of about 72 inches is light brownish gray, mottled, strongly acid silty clay loam.

grass. Native water-tolerant grasses can also be used for permanent pasture. Applications of high rates of fertilizer or lime generally are not practical because of the frequent overflow.

These soils are moderately well suited to habitat for woodland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by promoting the natural establishment of desirable plants.

The Guyton and Ouachita soils are in capability subclass Vw. The woodland ordination symbol for the Guyton soil is 9W. It is 11W for the Ouachita soil.

He—Hebert silt loam. This level, somewhat poorly drained soil is in intermediate positions on natural levees of the Ouachita and Boeuf Rivers and their distributaries. Most areas are protected from flooding by

This Hebert soil is well suited to cultivated crops, such as cotton, soybeans, grain sorghum, corn, and vegetables. Most irrigation systems are suitable. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Land grading and smoothing improve surface drainage, allow more uniform application of irrigation water, and permit more efficient use of farm equipment. A tillage pan can form as a result of excessive cultivation, but it can be broken up by subsoiling when the soil is dry. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion. Most crops respond well to fertilizer. Lime generally is needed.

This soil is well suited to pasture. The main limitations are wetness and only medium fertility. Suitable pasture plants are improved bermudagrass, common bermudagrass, bahiagrass, tall fescue, white flood levels. The effects of shrinking and swelling can be overcome by using proper engineering designs for structures and by backfilling with material that has low shrink-swell potential. Roads should be designed to offset the limited ability of the soil to support a load.

acreage is used as pastureland or woodland.

This soil is moderately well suited to short-season cultivated crops, mainly soybeans, corn, and grain sorghum. Its use is limited mainly by wetness, flooding, and irregular slopes. This soil is friable and easy to generally is not suited to dwellings because of the hazard of flooding. Wetness, moderate shrink-swell potential, moderately slow permeability, and low strength as it affects roads are limitations. Drainage and protection from flooding are needed to improve this soil for urban uses.

This Hebert soil is in capability subclass IIIw. The woodland ordination symbol is 8W.

Hn—Hebert silty clay loam. This level, somewhat poorly drained soil is in intermediate positions on natural levees of the Ouachita and Boeuf Rivers and their distributaries. Most areas of this soil are protected from flooding. Areas are long and narrow and range from 10 to 200 acres. Slopes range from 0 to 2 percent.

Typically, this soil has a brown, medium acid, silty clay loam surface layer about 5 inches thick. The

are needed to remove excess surface water. Land grading and smoothing improve surface drainage, allow more uniform application of irrigation water, and permit more efficient use of farm equipment. A tillage pan can form as a result of excessive cultivation, but it can be broken up by subsoiling when the soil is dry. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion. Most crops respond well to fertilizer, and lime generally is needed.

This soil is well suited to pasture. The main limitations are medium fertility and wetness. Suitable pasture plants are improved bermudagrass, common bermudagrass, bahiagrass, tall fescue, white clover, and winterpeas. Excess water on the surface can be removed by installing a surface drainage system. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and soil in

mainly because of wetness, low strength as it affects roads, moderate and moderately slow permeability, moderate shrink-swell potential, and flooding. Drainage is needed if roads and building foundations are constructed. Excess water can be removed by using shallow ditches and providing the proper grade for drainage. Roads should be designed to offset the limited ability of the soil to support a load. Moderately slow and moderate permeability and the high water table increase the possibility that septic tank absorption fields will fail. Lagoons or self-contained sewage disposal units can be used to dispose of sewage properly. In areas of the Hebert soil, homes can be built on properly designed mounds of soil material to raise them above expected flood levels.

The soils in this map unit are well suited to habitat for woodland and openland wildlife. Habitat can be improved by planting appropriate vegetation or by promoting the natural establishment of desirable plants.

The Hebert and Sterlington soils are in capability subclass IIw. The woodland ordination symbol for the Hebert soil is 8A. It is 3A for the Sterlington soil.

IB—Iuka fine sandy loam, frequently flooded. This moderately well drained soil is on the narrow flood plains of streams that drain the uplands. The landscape is low, broad, slightly convex ridges and flat areas

of the soil surface. The included soils make up about 13 percent of the map unit.

Water and air move through the Iuka soil at a moderate rate, and water runs slowly off the surface. This soil has low fertility. A seasonal high water table is about 1 to 3 feet below the surface from December through April. Plants generally are damaged by a lack of water during dry periods in summer and fall of some years. The soil is subject to very brief to long periods of flooding from December through April. This soil dries quickly after rains, and it has low shrink-swell potential.

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

This Iuka soil is moderately well suited to woodland and has high potential for the production of loblolly pine. Other common trees include water oak, willow oak, eastern cottonwood, yellow poplar, swamp chestnut, and sweetgum. Only trees that can tolerate seasonal wetness should be planted. Suitable trees to plant are loblolly pine, eastern cottonwood, and yellow poplar. The main concerns in producing and harvesting of timber are moderate limitations in the use of equipment and moderate seedling mortality caused by flooding, wetness, and a seasonal high water table. Using standard-wheeled and tracked equipment when the soil is wet or moist causes rutting and compaction. Using low-pressure ground equipment or using equipment only

This Iuka soil is in capability subclass Vw. The woodland ordination symbol is 11W.

LA—Larue-Smithdale association, moderately steep. These well drained soils are on uplands. The landscape is moderately sloping to strongly sloping ridgetops and moderately steep and steep side slopes. Many well defined drainageways cross the map unit. Eroded spots and gullies are in some places. The Larue soil is on ridgetops and side slopes, and the Smithdale soil is on side slopes. Fewer observations were made than in other map units because the moderately steep slopes are a major limitation affecting the use and management of these soils. Separating the soils would be of little value to the land user. The detail in mapping, however, is adequate for the expected use of these soils. In places are many small to large areas of soils that are similar to the Larue soil except that the combined thickness of their sandy surface and subsurface layers ranges from 40 to 80 inches. The soils that are similar to the Larue soil make up about 18 percent of the map unit. The map unit is about 45 percent Larue soil and similar soils and about 27 percent Smithdale soil. These soils are in a 1,500-acre area. Larue soil has slopes of 5 to 30 percent, and Smithdale soil has slopes of 12 to 30 percent.

Typically, the Larue soil has a brown, strongly acid loamy fine sand surface layer about 10 inches thick

moderate rate. Runoff is rapid, and the hazard of water erosion is severe. This soil has low fertility and a potentially toxic level of exchangeable aluminum in the root zone. Plants generally are damaged by a lack of water during dry periods in summer and fall of some years. This soil dries quickly after rains, and it has low shrink-swell potential.

Included with these soils in mapping are a few small areas of Cadeville, Guyton, and Savannah soils. Cadeville soils are in positions similar to those of the Larue and Smithdale soils, and they have a clayey subsoil. Guyton soils are in drainageways and are grayish throughout. Savannah soils are on ridgetops and have a fragipan. The included soils make up about 28 percent of the map unit.

The Larue and Smithdale soils are used mostly as woodland for timber production and wildlife habitat.

These soils are moderately well suited to woodland, and they have high or moderately high potential for the production of loblolly pine. Common trees are loblolly pine, longleaf pine, shortleaf pine, white oak, southern red oak, blackgum, post oak, and hickory. The main concerns in producing and harvesting timber are a moderate hazard of erosion caused by steepness of slope and moderate seedling mortality caused by soil droughtiness. The steepness of slope limits the kinds of equipment that can be used in forest management. In addition, traction is poor in areas of the Larue soil soils are used for tame pasture, special practices are needed to control erosion during the period of pasture establishment. Weeping lovegrass and improved bermudagrass are adapted to the Larue soil, and common bermudagrass and bahiagrass are better adapted to the Smithdale soil. Fertilizer and lime are needed for optimum forage production.

These soils generally are poorly suited to urban development, mainly because of steepness of slope. Where slopes are less than 15 percent, however, the soils are moderately well suited to most urban uses. Seepage can be a problem affecting sanitary facilities in areas of the Larue soil. On construction sites, the existing plant cover should be preserved during construction, and disturbed areas should be revegetated as soon as possible to control soil erosion.

The soils in this map unit are in capability subclass VIe. The woodland ordination symbol for Larue soil is 8S. It is 9R for the Smithdale soil.

OC—Olla-Cadeville association, steep. These well drained and moderately well drained soils are on uplands. The landscape is narrow, moderately sloping and strongly sloping ridgetops and moderately steep to very steep side slopes. The Olla soil is on side slopes, and the Cadeville soil is on ridgetops and side slopes. Many well defined drainageways cross the map unit. Eroded spots and gullies are in some places. Fewer observations were made in areas of these soils than in other areas because the moderately steep slopes are major limitations affecting the use and management of

crops. Plants generally are damaged by a lack of water during dry periods in summer and fall of most years. Shrink-swell potential is moderate. This soil dries quickly after rains.

Typically, the Cadeville soil has a dark brown, medium acid very fine sandy loam surface layer about 3 inches thick. The subsoil extends to a depth of about 32 inches. It is yellowish red, extremely acid clay in the upper and middle parts and light brownish gray, mottled, extremely acid clay in the lower part. The substratum to a depth of about 60 inches is light brownish gray, extremely acid clay.

Water and air move through the Cadeville soil at a very slow rate. Water runs rapidly off the surface, and the hazard of water erosion is severe. This soil has low fertility and a high level of exchangeable aluminum that is potentially toxic to crops. Plants generally are damaged by a lack of water during dry periods in summer and fall of most years. Shrink-swell potential is high.

Included with these soils in mapping are a few small areas of Iuka, Ruston, and Savannah soils. These soils are loamy throughout. Iuka soils are in narrow drainageways. Ruston and Savannah soils are on ridgetops. The included soils make up about 20 percent of the map unit.

The Olla and Cadeville soils are used mostly as woodland for timber production and habitat for upland woodland wildlife.

The soils in this map unit are moderately well suited to woodland and have moderately high potential for the and oak, along drainageways when harvesting timber and during site preparation.

Because of steep slopes and a severe hazard of erosion, these soils are poorly suited to urban development and pastureland, and they are not suited to cultivated crops.

These soils are in capability subclass VIIe. The

equipment. Most crops respond well to fertilizer. Lime generally is needed.

This soil is moderately well suited to pasture. The main limitations are wetness and medium fertility. Suitable pasture plants are common bermudagrass, improved bermudagrass, Dallisgrass, white clover, and

Pf—Perry clay. This level, poorly drained soil is in low positions on the flood plains of the Ouachita and Boeuf Rivers. The areas are irregular in shape and range from 20 to 1,000 acres. Slopes are less than 1 percent.

Typically, this soil has a dark grayish brown, strongly acid clay surface layer about 4 inches thick. The subsoil extends to a depth of about 50 inches. It is gray, mottled, strongly acid clay in the upper part and reddish brown, neutral clay in the lower part. The substratum to a depth of about 64 inches is reddish brown, moderately alkaline clay.

Included with this soil in mapping are a few small areas of Alligator and Hebert soils. Alligator soils are in slightly lower positions than the Perry soil and are grayish throughout. Hebert soils are in higher positions and are loamy throughout. Also included in low positions are small areas of Perry soils that are subject to rare flooding. The included soils make up about 20 percent of the map unit.

Water and air move through the Perry soil at a very slow rate. Water runs very slowly off the surface and stands in low places for long periods after heavy rains. This soil has medium fertility. A seasonal high water table fluctuates between a depth of about 2 feet and the soil surface from December through June. This soil has very high shrink-swell potential.

This soil is used mostly for cultivated crops. A small acreage is used as pastureland, woodland, or homesites.

This soil is somewhat poorly suited to most cultivated crops, mainly because of wetness, medium fertility, and

grazing during wet periods help keep the pasture and soil in good condition.

This soil is moderately well suited to the production of green ash, American sycamore, sweetgum, and water oak. The main concerns in producing and harvesting timber are severe limitations in the use of equipment and moderate seedling mortality caused by wetness. Conventional methods of harvesting timber can be used except sometimes during rainy periods, generally from December to April. Logging should be done only during dry periods to reduce rutting and soil compaction. Only trees that can tolerate seasonal wetness should be planted.

This soil is well suited to habitat for woodland wildlife and moderately well suited to habitat for openland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by promoting the natural establishment of desirable plants. Leaving stubble and other crop residue on the land over winter benefits doves, rabbits, quail, and nongame birds and animals.

This soil is poorly suited to urban development. Limitations affecting building sites, local roads and streets, and most sanitary facilities are severe. The main limitations are wetness, low strength as it affects roads, very slow permeability, and very high shrink-swell potential. Excess water can be removed by using shallow ditches and providing the proper grade for drainage. Roads should be designed to offset the limited ability of the soil to support a load. Septic tank absorption fields do not function properly during rainy periods because of wetness and very slow permeability. Lagoons or self-contained sewage disposal units can be brown, moderately alkaline clay in the lower part. The substratum to a depth of about 60 inches is reddish brown, moderately alkaline clay.

Included with this soil in mapping are a few small areas of Alligator and Portland soils. Alligator soils are in slightly lower positions than the Perry soil and have a subsoil that is grayish throughout. Portland soils are in slightly higher positions and have a subsoil that is reddish in the upper part. Also included are small areas of Perry soils that are subject to rare flooding or to frequent flooding. The included soils make up about 15 percent of the map unit.

Water and air move through the Perry soil at a very slow rate, and water runs very slowly off the surface. This soil has medium fertility. A seasonal high water table fluctuates between a depth of about 2 feet and the soil surface from December through April. This soil is subject to brief to very long periods of flooding from December through June. Floodwaters typically are 1.5 to 3.0 feet deep, and the depth exceeds 5 feet in places. Flood duration may exceed 1 month. The surface layer is very sticky when wet and dries slowly. This soil has very high shrink-swell potential.

This soil is used mostly as cropland or woodland. A small acreage is used as pastureland or homesites. Many small to large areas of this soil were formerly in cropland but are now idle and are slowly being reforested by hardwood trees.

This soil is poorly suited to most cultivated crops, mainly because of flooding, wetness, and poor tilth. Suitable crops are soybeans, grain sorghum, and rice (fig. 2). Planting dates are delayed and crops are

Conventional methods of harvesting timber generally can be used except sometimes during rainy periods, generally from December to June. Only trees that can tolerate seasonal wetness should be planted.

This soil is moderately well suited to habitat for woodland wildlife. Habitat can be improved by planting appropriate vegetation, by maintaining existing plant cover, or by promoting the natural establishment of desirable plants. A large acreage of this soil is within the Boeuf Wildlife Management Area.

This soil is somewhat poorly suited to pasture. Wetness is the main limitation, and flooding is a hazard. Common bermudagrass is a suitable pasture plant. Excess water on the surface can be removed by shallow ditches. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum production of forage.

This soil is poorly suited to urban development. It generally is not suited to dwellings because of the flood hazard. Major flood control structures, along with extensive local drainage systems, are needed. This soil has severe limitations affecting building sites, local roads and streets, and most sanitary facilities. The main limitations are wetness, very slow permeability, very high shrink-swell potential, and low strength as it affects roads. Septic tank absorption fields do not function properly during rainy periods because of wetness and very slow permeability. The effects of shrinking and swelling can be minimized by using proper engineering designs for structures and by backfilling with material that has low shrink-swell potential. Roads should be designed to offset the limited ability of the soil to

slightly higher positions, and they have a subsoil that is reddish in the upper part. Also included are small areas of soils similar to the Perry soil except that they have layers of loamy material between depths of 10 and 30 inches. The included soils make up about 25 percent of the map unit.

The Perry and Hebert soils are used mostly as woodland for timber production and wildlife habitat. A small acreage is used for cultivated crops, pasture, or homesites.

These soils are moderately well suited to woodland and have high potential for the production of water oak, sweetgum, green ash, and pecan trees. The main concerns in producing and harvesting timber are severe limitations in the use of equipment and moderate seedling mortality caused by wetness and the clay surface layer in areas of the Perry soil. Conventional methods of harvesting timber can be used except sometimes during rainy periods, generally from January to June. Logging should be done only during dry periods to prevent rutting and to reduce soil compaction. Providing drainage and planting water-tolerant trees on bedded rows can reduce the seedling mortality rate.

These soils are well suited to habitat for woodland wildlife and moderately well suited to openland and wetland wildlife. A large acreage is in the Boeuf Wildlife Management Area. Habitat for wildlife can be improved by planting appropriate vegetation or by promoting the natural establishment of desirable plants.

These soils are somewhat poorly suited to cultivated crops, and mainly soybeans and grain sorghum are grown. The main limitations are wetness, irregular topography, poor tilth of the Perry soil, and only medium fertility. The Hebert soil is friable and easy to keep in good tilth. Irregular slopes hinder tillage operations and increase the cost of installing drainage systems. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Crop residue left on or near the surface helps to maintain or improve tilth and reduce erosion. Most crops respond well to additions of lime and fertilizer.

These soils are moderately well suited to pasture. Wetness in the swales is the main limitation. Suitable pasture plants are common bermudagrass, improved bermudagrass, Dallisgrass, white clover, and ryegrass

affects roads, and moderate and very high shrink-swell potential. Also, flooding is a hazard. Flooding can be controlled, but only with major structures, such as levees. Homes can be built on properly designed mounds of soil material to raise them above expected flood levels. Drainage should be provided around homesites. Roads should be designed to offset the limited ability of the soil to support a load. Lagoons or self-contained sewage disposal units can be used to dispose of sewage properly. Buildings and roads need to be designed to offset the effects of shrinking and swelling.

These soils are in capability subclass IIIw. The woodland ordination symbol for the Perry soil is 3W. It is 8A for the Hebert soil.

Pm—Portland silty clay loam. This level, poorly drained soil is in low positions on natural levees on the flood plains of the Ouachita and Boeuf Rivers. The areas are irregular in shape and range from 15 to 200 acres. Slopes are less than 1 percent.

Typically, this soil has a grayish brown, strongly acid silty clay loam surface layer about 8 inches thick. The subsoil extends to a depth of about 48 inches. It is dark brown, mottled, strongly acid clay in the upper part and reddish brown, moderately alkaline clay in the lower part. The substratum to a depth of about 60 inches is stratified brown silt loam and reddish brown clay.

Included with this soil in mapping are a few small areas of Hebert, Perry, and Portland clay soils. Hebert soils are in slightly higher positions than the Portland silty clay loam soil and are loamy throughout. Perry and Portland clay soils are in slightly lower positions and have a subsoil that is grayish in the upper part. Also included are small areas of Portland and Perry soils that are subject to rare flooding. The included soils make up about 15 percent of the map unit.

Water and air move through the Portland soil at a very slow rate. Water runs slowly off the surface and stands in low places for long periods after heavy rains. This soil has medium fertility. A seasonal high water table fluctuates between a depth of about 2 feet and the soil surface from December through May. The surface layer is friable, but it becomes somewhat difficult to keep in good tilth where cultivation has mixed some of the clayey subsoil into the plow layer. This soil has high grown. This soil is limited mainly by wetness, but it is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Land grading and smoothing improve surface drainage and permit more efficient use of farm equipment. Most crops respond well to additions of fertilizer, and lime generally is needed.

This soil is moderately well suited to pasture. The main limitations are wetness and medium fertility. Suitable pasture plants are common bermudagrass, improved bermudagrass, white clover, Dallisgrass, and ryegrass. Excess water on the surface can be removed by shallow ditches. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and soil in good condition. Fertilizer and lime are needed for optimum production of forage.

This soil is moderately well suited to woodland and has high potential for the production of sweetgum, green ash, water oak, and American sycamore. The main concerns in producing and harvesting timber are severe limitations in the use of equipment and moderate seedling mortality caused by wetness. Conventional methods of harvesting timber can be used except sometimes during rainy periods, generally from December to April. Logging should be done during dry periods to reduce rutting and soil compaction. Only trees that can tolerate seasonal wetness should be

wetness and very slow permeability. Lagoons or self-contained sewage disposal units can be used to dispose of sewage properly. Roads should be designed to offset the limited ability of the soil to support a load. The effects of shrinking and swelling can be minimized by using proper engineering designs for structures and by backfilling with material that has low shrink-swell potential.

This Portland soil is in capability subclass IIIw. The woodland ordination symbol is 3W.

Pn—Portland clay. This level, poorly drained soil is in low positions on the flood plains of the Ouachita and Boeuf Rivers. The areas are irregular in shape and range from 20 to 500 acres. Slopes are less than 1 percent.

Typically, this soil has a dark grayish brown, neutral clay surface layer about 5 inches thick. The subsoil extends to a depth of about 52 inches. It is dark brown, mottled, neutral clay in the upper part and reddish brown, moderately alkaline clay in the middle and lower parts. The substratum to a depth of about 72 inches is dark brown, mottled, moderately alkaline clay.

Included with this soil in mapping are a few small areas of Hebert and Perry soils. Hebert soils are in slightly higher positions than the Portland soil and are loamy throughout. Perry soils are in slightly lower positions and have a subsoil that is grayish in the upper part. Also included are small areas of Portland soils that crops respond well to additions of lime and fertilizer. Land grading and smoothing improve surface drainage, allow more uniform application of irrigation water, and permit more efficient use of farm equipment.

This soil is moderately well suited to pasture. The main limitations are wetness and medium fertility. Suitable pasture plants are common bermudagrass, improved bermudagrass, Dallisgrass, white clover, and ryegrass. Excess water on the surface can be removed by shallow ditches. Lime and fertilizer can overcome the medium fertility and promote good growth of forage plants. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and soil in good condition.

This soil is moderately well suited to woodland and has high potential for the production of American sycamore, sweetgum, and water oak. The main concerns in producing and harvesting timber are severe limitations in the use of equipment and moderate seedling mortality caused by wetness. Conventional engineering designs for structures and by backfilling with material that has low shrink-swell potential.

This Portland soil is in capability subclass IIIw. The woodland ordination symbol is 3W.

Po—Providence silt loam, 1 to 5 percent slopes. This moderately well drained, moderately slowly permeable soil is on ridgetops on the uplands and on low terraces along major streams. The areas are irregular in shape and range from 15 to 300 acres.

Typically, this soil has a brown, strongly acid silt loam surface layer about 2 inches thick. The subsurface layer to a depth of about 6 inches is yellowish brown, very strongly acid loam. The subsoil extends to a depth of 72 inches. It is, in sequence downward, strong brown, very strongly acid silt loam; yellowish brown, mottled, very strongly acid silty clay loam; yellowish brown, mottled, very strongly acid silty clay loam that is a dense and brittle fragipan; and yellowish brown, mottled, very strongly acid loam.

cutting, or girdling eliminates unwanted weeds, brush, or trees. Logging should be done only during dry periods to reduce rutting and soil compaction.

This soil is moderately well suited to urban development. Preserving the existing plant cover during construction helps to control erosion. The main limitations are wetness, moderately slow permeability, low strength as it affects roads, and moderate shrink-swell potential. A seasonal high water table is perched above the fragipan, and drainage should be provided if buildings are constructed. Septic tank absorption fields do not function properly during rainy periods because of wetness and moderately slow permeability. Lagoons or self-contained sewage disposal units can be used to dispose of sewage properly. Roads should be designed to offset the limited ability of the soil to support a load. Buildings and roads can be designed to offset the effects of shrinking and swelling.

This soil is moderately well suited to cultivated crops. It is limited mainly by steepness of slope and medium fertility. The main crop is soybeans; but grain sorghum, cotton, corn, and wheat are also suitable. This soil is friable and easy to keep in good tilth and can be worked throughout a wide range of moisture content. A tillage pan can form as a result of excessive cultivation, but it can be broken up by subsoiling when the soil is dry. Maintaining crop residue on or near the surface reduces runoff and helps to maintain soil tilth and organic matter content. Crops respond well to additions of lime and fertilizer, which improve fertility and reduce the levels of exchangeable aluminum.

This soil is well suited to pasture and has few limitations affecting this use. Suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, white clover, winterpeas, and ryegrass. When the soil is wet, grazing results in puddling, poor tilth, and excessive runoff. Seedbed preparation should be on the contour or across the slope where practical. Fertilizer and lime are needed for optimum production of forage. Proper stocking, pasture rotation, and restricted grazing during wet periods help keep the pasture and soil in good condition. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth.

This soil is well suited to habitat for upland and woodland wildlife. Habitat for wildlife can be improved by planting appropriate vegetation or by promoting the natural establishment of desirable plants. Every three years, prescribed burning rotated among several small

woodland ordination symbol is 8W.

Rg—Rilla silt loam. This level, well drained soil is in high positions on natural levees on the flood plains of the Ouachita and Boeuf Rivers. The areas are irregular in shape and range from 10 to 500 acres. Slopes range from 0 to 2 percent.

Typically, this soil has a dark brown, strongly acid silt loam surface layer about 6 inches thick. The subsurface layer is brown, strongly acid silt loam to a depth of about 10 inches. The subsoil to a depth of about 56 inches is dark brown, mottled, very strongly acid silty clay loam in the upper part and brown, mottled, very strongly acid silt loam in the middle and lower parts. The substratum to a depth of about 68 inches is brown, mottled, very strongly acid loam.

Included with this soil in mapping are a few small areas of Gallion, Hebert, and Sterlington soils. Gallion soils are in positions similar to those of the Rilla soil and have a more alkaline subsoil. Hebert soils are in lower positions and have a subsoil that is grayish in the upper part. Sterlington soils are in slightly higher positions and have less than 18 percent clay in the subsoil. Also included at low elevations or in unprotected places are small to large areas of Rilla soils that are subject to rare or occasional flooding. The included soils make up about 15 percent of the map unit.

Water and air move through this Rilla soil at a moderate rate, and water runs slowly off the surface. This soil has medium fertility and potentially toxic levels of exchangeable aluminum. A seasonal high water table is about 4 to 6 feet below the surface from December through April. Plants are damaged by a lack of water during dry periods in summer and fall of some years. This soil has moderate shrink-swell potential in the subsoil.

This soil is used mostly for cultivated crops. A small acreage is used as pastureland, woodland, or homesites.

This soil is well suited to cultivated crops and has few limitations affecting this use. Suitable crops are cotton, corn, soybeans, grain sorghum, wheat, and vegetables (fig. 3). All irrigation systems are suitable for this soil. It is friable and easy to keep in good tilth. It can be worked throughout a wide range of moisture content. A tillage pan can form as a result of excessive cultivation, but it can be broken up by subsoiling when the soil is dry. Crop residue left on or near the surface

Rk—Rilla-Hebert silt loams, gently undulating. These well drained and somewhat poorly drained soils are on low parallel ridges and swales on flood plains of the Ouachita and Boeuf Rivers. The well drained Rilla

Included with this soil in mapping are a few small areas of Gallion and Sterlington soils. Gallion soils are in positions similar to those of Rilla soil and are more alkaline in the subsoil. Sterlington soils are in higher wetness, low strength as it affects roads, moderate and moderately slow permeability, and the moderate shrink-swell potential. Flooding is a hazard in some low places. In inadequately protected areas, homes can be built on properly designed mounds of soil material to raise them above expected flood levels. Drainage should be provided around homesites. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. Roads should be designed to offset the limited ability of the soil to support a load. Foundations of buildings can be designed to overcome the effects of shrinking and swelling. Lagoons or self-contained sewage disposal units can be used to dispose of sewage properly.

The Rilla soil is in capability subclass IIe. The woodland ordination symbol is 9A. The Hebert soil is in capability subclass IIw, and the woodland ordination symbol is 8A.

Ru—Ruston fine sandy loam, 3 to 8 percent slopes. This moderately sloping, well drained soil is on ridgetops and side slopes on the uplands. The areas generally are oblong and range from 5 to 80 acres.

Typically, this soil has a dark brown, medium acid fine sandy loam surface layer about 3 inches thick. The subsurface layer to a depth of about 8 inches is brown, medium acid fine sandy loam. The subsoil to a depth of about 84 inches is yellowish red, very strongly acid sandy clay loam in the upper part; yellowish red and light yellowish brown, strongly acid fine sandy loam in

This soil is well suited to woodland and has few limitations affecting woodland use and management. Suitable trees to plant are loblolly pine and longleaf pine. Other common trees are shortleaf pine, southern red oak, white oak, sweetgum, and post oak. Site preparation, such as chopping, burning, herbicide application, and bedding, should reduce debris and immediate plant competition and facilitate mechanical planting. Planting trees on the contour helps to control erosion.

This soil is well suited to urban development; however, the hazard of erosion is increased if the soil is left exposed during site development. This soil has slight limitations affecting building sites and moderate limitations affecting local roads and streets and most sanitary facilities. Seepage is a problem if this soil is used for sewage lagoons or sanitary landfills, and moderate permeability is a limitation affecting the performance of septic tank absorption fields. This limitation can be overcome by increasing the size of the absorption field. Roads can be designed to overcome the limited ability of the soil to support a load.

This soil is well suited to habitat for upland and woodland wildlife. Habitat can be improved by planting appropriate vegetation or by promoting the natural establishment of desirable plants. Every three years, prescribed burning rotated among several small tracts of land can increase the amount of palatable deer browse and seed-producing plants for quail and turkey.

This soil is moderately well suited to cultivated crops

SC—Sacul fine sandy loam, moderately sloping. This moderately sloping, moderately well drained soil is on ridgetops and side slopes on the uplands. Most

trails, log landings, and haul roads properly and within limiting grades reduce erosion. Roads and landings can be protected from erosion by constructing diversions contained sewage disposal units can be used to dispose of sewage properly.

This Sacul soil is in capability subclass VIe. The woodland ordination symbol is 8C.

SH—Savannah-Sacul association, gently sloping. These soils are moderately well drained. The Savannah soil is on ridgetops and side slopes, and the Sacul soil is on side slopes. Well-defined drainageways cross the map unit in most places. Fewer observations were

generally are damaged by a lack of water during dry periods in summer and fall of most years. Root penetration is limited by the fragipan. This soil has high shrink-swell potential in the subsoil.

Included with these soils in mapping are a few small areas of Frizzell, Guyton, Prentiss, and Ruston soils. Frizzell soils are in lower positions than the Savannah and Sacul soils. Frizzell soils are loamy throughout and do not have a fragipan. Guyton soils are in drainageways and are grayish throughout. Prentiss soils main limitations are low fertility, steepness of slope, and potentially toxic levels of exchangeable aluminum within

in the middle part; and reddish brown, mottled, very strongly acid loam in the lower part. The substratum to development. Some low areas of included soils are subject to flooding and are poorly suited. In most areas, this soil has slight limitations affecting building sites, local roads and streets, and most sanitary facilities. Moderate permeability is a limitation if this soil is used for septic tank absorption fields. In inadequately protected areas, homes can be built on properly designed mounds of soil material to raise them above expected flood levels.

This soil is well suited to habitat for openland wildlife

high potential for the production of loblolly pine and hardwoods. Other common trees are shortleaf pine, southern red oak, white oak, sweetgum, and hickory. This soil has few limitations affecting the production and harvesting of timber. Roads and landings can be protected from erosion by constructing diversions and by seeding cuts and fills. Conventional methods of harvesting timber generally are suitable, but the soil can be compacted if it is wet and heavy equipment is used. Soil compaction can be avoided by using specialized fertilizer, which improve fertility and reduce the levels of aluminum. Erosion can be controlled if fall grain or winter pasture grasses are seeded early, stubble-mulch tillage is used, and tillage and seeding are on the contour or across the slope. Also, waterways should be shaped and seeded to perennial grass.

This soil is poorly suited to urban development and has severe limitations affecting building sites, local roads and streets, and most sanitary facilities. The main limitations are wetness, slow permeability, high shrink-swell potential, and low strength as it affects roads. Slow permeability and the high water table increase the possibility that septic tank absorption fields will fail. Lagoons or self-contained sewage disposal units can be used to dispose of sewage properly. Properly designing foundations and footings and diverting runoff away from buildings help to prevent structural damage as a result of shrinking and swelling. Roads should be designed to offset the limited ability of the soil to support a load.

mottled gray, dark gray, and greenish gray, neutral clay in the middle part; and reddish brown, mottled, mildly alkaline clay in the lower part.

Included with this soil in mapping are a few small and medium-sized areas of Alligator and Perry soils that are in higher positions than the Yorktown soil and are dry enough to crack to a depth of 20 inches or more in most years. Also included are many small areas of soils that are similar to the Yorktown soil except that they have layers of organic material as much as 3 feet thick over the mineral soil. The included soils make up about 25 percent of the map unit.

Water and air move through the Yorktown soil at a very slow rate. This soil is ponded or flooded most of the time by at least 6 inches of water, and it is wet throughout the year. During dry periods, the water table can be as much as 0.5 foot below the surface. This soil has very high shrink-swell potential, but it seldom dries enough to shrink and crack.

Prime Farmland

In this section, prime farmland is defined and discussed, and the prime farmland soils in Caldwell Parish are listed.

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise use of our nation's prime farmland.

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

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

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not subject to frequent flooding during the growing season. The slope ranges mainly from 0 to 5 percent.

The map units, or soils, that make up prime farmland in Caldwell Parish are listed in table 6. The location of each map unit is shown on the detailed soil maps at the back of this publication. The extent of each unit is given in table 5. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

Soils that have limitations, such as a high water table or flooding, may qualify as prime farmland if these limitations are overcome by such measures as drainage or flood control. In table 6, the measures needed to overcome the limitations of a map unit, if any, are shown in parentheses after the map unit name. Onsite evaluation is necessary to determine if the limitations have been overcome by the corrective measures.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil ...

is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; 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 listed for each soil.

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

About 68,000 acres in Caldwell Parish was used for agriculture in 1982, according to the Census of Agriculture. Of this total, about 38,500 acres was used for crops, mainly cotton and soybeans. About 9,400 acres was used for improved pasture and hay production, and about 13,000 acres was used as native pasture, rangeland, and woodland pasture. From 1978 to 1982 the amount of farmland and the average

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

Livestock producers grazing cattle on cool-season grasses that are growing on soils that have high percentage of aluminum saturation should be aware of the potential for grass tetany. Grass tetany is a complex metabolic disorder resulting from mineral imbalances in diets of ruminant animals in temperate regions. Grass tetany is most common during cool, wet conditions and when cool-season grasses are growing. Animals that consume these grasses can eventually die. Mature females in late stages of pregnancy and early lactation are most commonly affected because they have the greatest magnesium requirements and the lowest levels of magnesium in the blood stream. High levels of aluminum saturation in unlimed soils block the uptake of calcium, magnesium, and phosphorus by the forage [illegible] that have grass tetany become calcium

exchangeable aluminum that are potentially toxic to some plants. On acid soils, crop failure results because high levels of exchangeable aluminum prevent plant root uptake of phosphorus. Excessive levels of manganese also have been reported to cause reduced cotton yields. Applying lime is probably the most common method of reducing aluminum and manganese levels in the soil.

Some secondary and micronutrient deficiencies also have been noted in Caldwell Parish. Sulphur deficiency has been noted in the parish because of the increased use of high analysis fertilizer on soils that are low in content of organic matter. On coarse-textured soils that have been recently limed, adding boron generally increases cotton yields. Molybdenum increases soybean yields on unlimed soils. Soils low in zinc or those limed to a pH of 6.5 or more benefit from the addition of zinc for rice production.

Crops and pastures in Caldwell Parish generally respond to a complete fertilizer. The kind and amount of fertilizer or lime needed depends on the kind of crop, on past cropping history, on the level of yield desired, and on the kind of soil. The amount should be based on laboratory analysis of soil samples from each field. The

The level of organic matter can be maintained or improved by growing crops that produce extensive root systems and an abundance of foliage, such as corn, grain sorghum, rice, and small grains. The organic matter content can be maintained by leaving crop residue on the soil surface, by growing perennial grasses and legumes in rotation with other crops, and by adding barnyard manure.

Favorable organic matter levels in soils promote crop maturity and increase the effectiveness of herbicides while reducing herbicide injury to crops.

The bottom lands in Caldwell Parish are protected from flooding by levees along the Ouachita River. Many fields, however, are not protected from backwater flooding from the Boeuf River and Bayou Lafourche or from runoff from higher elevations.

Water for plant growth. In Caldwell Parish, rainfall is heavy in winter and spring. In many years, however, sufficient water is not available in summer when it is needed for optimum plant growth. This rainfall pattern favors the growth of early-maturing crops.

Irrigated acres in the parish has increased from in soils in drainage ditches.

Cropping systems in which a plant cover is maintained on the soil for extended periods help to control soil erosion. Legume or grass cover crops help to control erosion, increase the content of organic matter and nitrogen in the soils, and improve tilth. Terraces, diversions, and grassed waterways; conservation tillage; contour farming; and cropping systems that rotate grass or close-growing crops with row crops help to control erosion on cropland and

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 7 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

them unsuitable for cultivation

of many soils and sites, but grows best on the rich cubic feet of industrial wood per acre per year and not withdrawn from timber use. Between 1974 and 1980, the commercial forest areas decreased by about 66,300 acres. The cleared land was converted mostly to cropland and pastureland. Other uses are urban land and transmission and transportation corridors. The conversion of cleared land reversed between 1980 and 1984, when the forest land acreage in Caldwell Parish increased by 35,700 acres, mainly the result of landowners converting marginal cropland and pastureland to forest land.

The forest land in Caldwell Parish will probably stabilize at the present acreage. Only minor fluctuations are expected in the future because of small changes in land use.

dominant except on drier sites. About 31 percent of the loblolly-shortleaf pine forest type is planted, and 69 percent is natural. Scattered hardwoods, such as sweetgum, blackgum, southern red oak, post oak, white oak, mockernut hickory, and pignut hickory, can be mixed with pines on well drained soils. On more moist sites, sweetgum, red maple, water oak, and willow oak can be mixed with pines. Ash and American beech are associated with this forest type in fertile, well drained coves and along stream bottoms.

The *oak-hickory* forest type makes up 23 percent of the forest land. Upland oaks or hickory, singly or in combination, make up most of the stocking. Where pines make up 25 to 50 percent of the stocking, the stand is classified as oak-pine. Common associated less are producing well below potential. These tracts would benefit if stands were improved by thinning out mature trees and undesirable species. The forests owned by the forest industry are highly productive. Almost all of the bottom land tracts are producing at only a fraction of potential. Protection from grazing, fire, insects, and diseases; tree planting; and timber stand improvement are needed to improve stands in both upland and bottom land forests.

Foresters with the Soil Conservation Service, Louisiana Office of Forestry, Louisiana Cooperative

Forage production varies according to the type of forest and the amount of sunlight that reaches the understory vegetation during the growing season.

Soils that have about the same potential to produce trees also have similar potential for producing about the same kind and amount of understory vegetation. The plant community on these soils will reproduce itself as long as the environment does not change.

Research has proven a close correlation exists between the total potential yield of grasses, legumes, and forbs in similar soils and the amount of sunlight zone, excessive alkalinity, acidity, sodium salts, or other

influenced by kinds of soil or topographic features.

the site index tables for the soil survey of Caldwell Parish *(4, 5, 6, 23)*.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year. Cubic meters per hectare can be converted to cubic feet per acre by multiplying by 14.3. Cubic feet can be converted to board feet by multiplying by a factor of about 5. For example, a productivity class of 8 means the soil can be expected to produce 114 cubic feet per acre per year at the point where mean annual increment culminates, or about 570 board feet per acre per year.

Trees to plant are those that are used for

important. Soils subject to flooding are limited for recreational use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Billy R. Craft, biologist, Soil Conservation Service, helped prepare this section.

Caldwell Parish is predominantly rural and in forest land. It is about 74 percent forest land, 16 percent cropland and pastureland, and 10 percent water and miscellaneous land uses. The upland pine forests, bottom land hardwood forests, and open agricultural land in the parish support a large and varied population of game and nongame animals.

The bottom land hardwood forests along the Ouachita River provide the most productive habitat for wildlife in the parish. The alluvial soils in this area support a hardwood plant community made up mainly of Nuttall oak, water oak, persimmon, water hickory, elm, overcup oak, sugarberry, and willow oak. Wildlife using these hardwood forests include white-tailed deer, swamp rabbit, fox squirrel, beaver, coyote, mink, fox, turkey, raccoon, wood duck, and many nongame birds and animals. Because of the continuing threat of further land clearing for cropland, special efforts are needed to save the remaining stands of bottom land hardwoods for use by wildlife.

About 40,000 acres of bottom land hardwood forests is on the narrow flood plains of streams that drain the uplands. These forests also provide valuable habitat for wildlife. Their value as habitat for wildlife is especially high because of the diversity in food and cover they provide to wildlife species using the adjacent pine forests of the uplands. These forests have a high potential as habitat for wild turkey. Water for wildlife is available throughout the year in most of these bottom land areas.

About 30,000 acres of hardwood forests is also on the uplands of the parish. Hilly to very steep topography characterize most of these forested areas. Typical overstory trees include white oak, southern red oak, water oak, and sweetgum. Squirrels are especially abundant in these forests when the mast crop is good.

The rest of the uplands is mainly in pine forest. The forest stands are mainly loblolly pine, shortleaf pine, and associated hardwoods. Most of the pine forest is intensively managed for timber production. Wildlife management is a secondary objective; however, because leasing land to hunting clubs provides the potential for additional income, management for wildlife habitat is becoming more important (fig. 4). Interest by the forest industry, private landowners, and hunters is increasing for multiple use and management of the forest land.

About 51,000 acres of open agricultural land in the parish provides poor to moderate habitat for wildlife. Species commonly using agricultural land include mourning dove, bobwhite quail, cottontail, swamp rabbit, woodcock, and numerous small, nongame birds and animals. The shortage of fall and winter cover is the main problem affecting wildlife. In addition, the absence of habitat diversity limits the numbers and kinds of wildlife that can use the agricultural land. Major crops include soybeans, cotton, grain sorghum, corn, and winter wheat.

The many private ponds, public lakes, rivers, and bayous of the parish support low to high populations of fish, such as bluegill, largemouth bass, white bass, white and black crappie, green sunfish, striped bass, channel catfish, buffalo, gar, carp, shad, and several species of shiner. The main water bodies supporting fish are the Ouachita River, Bayou Lafourche Cutoff, Boeuf River, Horseshoe Lake, Castor Creek, and the many farm ponds.

The state-owned Boeuf Wildlife Management Area in the eastern part of the parish covers 38,403 acres. It is managed for optimum wildlife production. It provides a significant opportunity for hunting and other outdoor recreational pursuits.

Endangered and threatened species residing in Caldwell Parish are the bald eagle, red-cockaded woodpecker, and the American alligator.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, bermudagrass, bahiagrass, clover,

created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations must be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to: evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

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

Building Site Development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by soil texture and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. Depth to a high water table and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to a high water table, flooding, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, depth to a high water table, the available water capacity in the upper 40 inches, and the content of salts and sodium affect plant growth. Flooding, wetness, slope, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 12 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 12 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or

impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 12 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, flooding, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope can cause construction problems.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils have a plasticity index of more than 10, a high shrink-swell potential, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that amount of gravel or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and releases a variety of plant-available nutrients as it decomposes.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, irrigation, and terraces and diversions.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of organic matter or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and the salinity of the soil.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; and susceptibility to flooding. Excavating and grading and the stability of ditchbanks are affected by slope and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts or sodium. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope and wetness affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some

in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area, or from nearby areas, and on field examination.

Physical and Chemical Properties

Table 16 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They influence the soil's adsorption of cations, moisture retention, shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at

texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of movement of water through the soil when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage in each major soil layer is stated in inches of water per inch of soil. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4

moderate rate of water transmission.

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

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table, that is, *perched* or *apparent;* and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 1 month is not indicated in table 17.

rate of growth and related plant functions.

Soil factors consist of both physical and chemical properties. The physical properties include particle-size distribution (texture), structure, surface area, bulk density, water retention and flow, and aeration. The chemical properties can be separated into quantity factors, intensity factors, relative intensity factors, quantity/intensity relationship factors, and replenishment factors.

Quantity factor. This is the amount of an element in the soil that is readily available for uptake by plants. To determine the quantity factor, the available supply of an element is removed from the soil using a suitable extractant and is analyzed.

Intensity factor. This is the concentration of an element species in the soil moisture. It is a measure of the availability of an element for uptake by plant roots.

clearly limited by the available supply of one or more nutrients in the plow layer, existing soil tests generally can diagnose the problem and reliable recommendations to correct the problem can be made. Soil management systems generally are based on physical and chemical alteration of the plow layer. Characteristics of this layer can vary from one location to another, depending on management practices and soil use.

The underlying layers are less subject to change or change very slowly as a result of alteration of the plow layer. The properties of the subsoil reflect the soil's inherent ability to supply nutrients to plant roots and to provide a favorable environment for root growth. If soil fertility recommendations based on current soil tests are followed, major fertility problems in the plow layer are normally corrected. Crop production is then limited by crop and environmental factors, physical properties of the plow layer, and physical and chemical properties of the subsoil.

Although the soil's available nutrient supply is only one factor affecting crop production, it is important. Information on the available nutrient supply in the subsoil allows evaluation of the native fertility levels of the soil.

Aluminum saturation—exchangeable aluminum—effective cation-exchange capacity.

In general four major soil profile types with respect to soil fertility can be distinguished. The first type includes soils that have relatively high levels of available nutrients throughout the soil profile. This type reflects the relatively high fertility status of the parent material from which the soils developed and a relatively young age or a less intense degree of weathering of the soil profile.

The second type includes soils that have relatively low levels of available nutrients in the surface layer, but these levels generally increase with depth. These soils have relatively fertile parent material but are older soils that have been subjected to weathering over a longer period or to more intense weathering. Crops grown in these soils can exhibit deficiency symptoms early in the growing season if the levels of available nutrients in the surface horizon are low enough. If the crop roots are able to penetrate to the more fertile subsoil, deficiency symptoms often disappear.

The third type includes soils that have adequate or relatively high levels of available nutrients in the surface layer but have relatively low levels in the subsoil. Such crop rather than nitrogen soil test levels.

Despite the lack of an adequate nitrogen soil test, the amounts of readily available ammonium- and nitrate-nitrogen in soils, the amount of organic nitrogen, the rate of mineralization of organic nitrogen to available forms, and the rate of conversion of fixed ammonium-nitrogen to available forms provide information on the fertility status of a soil with respect to nitrogen. Unfortunately, since the amounts and rates of transformation of the various forms of nitrogen in the soils of Caldwell Parish are unknown, no assessment of the nitrogen fertility status of these soils can be given.

Phosphorus. Phosphorus exists in the soil as discrete solid phase minerals, such as hydroxyapatite, variscite, and strengite; as occluded or coprecipitated phosphorus in other minerals; as retained phosphorus on mineral surfaces, such as carbonates, metal oxides, and layer silicates; and in organic compounds. Because most of the phosphorus in soils is unavailable for plant uptake, the availability of phosphorus in the soil is an important factor in controlling phosphorus uptake by plants.

The Bray 2 extractant tends to extract more phosphorus than the more commonly used Bray 1, Mehlich I, and Olsen extractants. The Bray 2 extractant provides an estimate of the plant available supply of phosphorus in soils. According to the soil test interpretation guidelines used in Louisiana, the Bray 2 extractable phosphorus content of most of the soils in Caldwell Parish is very low. The very low levels of available phosphorus are a limiting factor in crop production. The soils require continual additions of fertilizer phosphorus to build up and maintain adequate levels of available phosphorus for sustained crop production.

The Bayoudan, Brimstone, Falkner, Frizzell, Gore, Guyton, Iuka, Larue, Prentiss, Providence, Sacul, Savannah, Smithdale, and Tippah soils have very low levels of extractable phosphorus throughout the soil profile. The Cahaba soil has a high level of extractable phosphorus in the surface layer, most likely a result of the recent addition of fertilizer phosphorus. The Alligator, Gallion, Rilla, and Sterlington soils have variable amounts of phosphorus, but these levels are in the medium to high range. The extractable phosphorus content of the Forestdale, Gore, Hebert, Portland, Ouachita, and Yorktown soils increases with depth and ranges from medium to high according to soil test interpretation guidelines. The subsoil of the Gallion and Rilla soils can be a significant source of available phosphorus to plants as the roots extend through the profile. Addition of fertilizer phosphorus is necessary, however, to maintain sustained crop production since subsoil nutrient reserves may be depleted.

Potassium. Potassium exists in three major forms in soils: exchangeable potassium associated with negatively charged sites on clay mineral surfaces, nonexchangeable potassium trapped between clay mineral interlayers, and structural potassium within the crystal lattice of minerals. The exchangeable form of potassium in soils is replaced by other cations and is generally readily available for plant uptake. To become available to plants, the other forms of potassium must be converted to the exchangeable form via weathering reactions.

The exchangeable potassium content of the soils is an estimate of the plant available supply of potassium. According to soil test interpretation guidelines, the available supply of potassium in most of the soils of Caldwell Parish is in the very low, low, or medium range depending on the soil texture. Exchangeable potassium levels generally are low in the upper part of the Larue soils that formed in unconsolidated sands and sandy loam parent material, but the levels may increase slightly with depth, as in the Ruston soils and the lower part of the Larue soils, as clay content increases. This indicates a general lack of micaceous minerals, which are a source of exchangeable potassium during weathering. The exchangeable potassium content of the Bayoudan soils that developed from unconsolidated acid clays generally remains about the same or increases with depth. Increases in exchangeable potassium with depth can be associated with increasing clay content. The exchangeable potassium content of the Cahaba, Frizzell, Guyton, Iuka, Prentiss, Smithdale, Ouachita, and Sacul soils is generally low throughout the soil profile. The exchangeable potassium content in the Forestdale, Perry, Portland, and Yorktown soils is much higher than that of most of the other soils in the parish because of a higher clay content, but according to soil test interpretation guidelines, it is still in the low to medium range depending on the soil texture. The soils that have a relatively low clay content, such as the Sterlington soils, generally have low amounts of exchangeable potassium. The higher levels of exchangeable potassium generally are in the loamy and clayey soil horizons. Higher levels are also in soils where fertilizer potassium has been applied.

Crops respond to fertilizer potassium if exchangeable potassium levels are very low to low. Low levels can be gradually built up by adding fertilizer potassium if the soils have a sufficient amount of clay to hold the potassium. Exchangeable potassium levels can be maintained by adding enough fertilizer potassium to make up for that removed by crops, the fixation of exchangeable potassium to nonexchangeable potassium, and leaching. Some soils in Caldwell Parish, such as the Larue soils, do not have a sufficient amount of clay in the root zone, and therefore, a sufficiently high cation-exchange capacity to maintain adequate quantities of available potassium for sustained crop production. These soils require more frequent additions of potassium because of leaching.

exchangeable calcium levels are higher than or about the same as the exchangeable magnesium levels.

High levels of exchangeable calcium in the surface layer are normally associated with higher pH levels than are in the subsoil. The higher levels are probably the result of applications of lime to control soil acidity. Higher levels in the subsoil generally are associated with higher clay content or with free carbonates when pH levels are high.

normally have significant amounts of sodium. Soils in low rainfall environments, soils that have restriced drainage in the subsoil, and soils on the Coastal Marsh have significant amounts of sodium. High levels of exchangeable sodium are associated with undesirable physical properties, such as poor structure, slow permeability, and restricted drainage.

Although many soils in Caldwell Parish have more exchangeable sodium than exchangeable potassium, only the Brimstone soils have excessive levels of exchangeable sodium in the root zone. Elevated levels of exchangeable sodium are in the subsoil of the Gore, Guyton, Forestdale, and Frizzell soils.

pH, exchangeable aluminum and hydrogen, exchangeable and total acidity. The pH of the soil solution in contact with the soil affects other soil properties. Soil pH is an intensity factor rather than a quantity factor. The lower the pH, the more acidic the soil. Soil pH controls the availability of essential and nonessential elements for plant uptake by controlling mineral solubility, ion exchange, and adsorption/desorption reactions with soil surfaces. Soil pH also affects microbial activity.

Aluminum exists in soils as exchangeable monomeric hydrolysis species, nonexchangeable polymeric hydrolysis species, aluminum oxides, and aluminosilicate minerals. Exchangeable aluminum in soils is determined by extraction with neutral salts, such as potassium chloride or barium chloride. The exchangeable aluminum in soils is directly related to pH. If pH is less than 5.5, the soils have significant amounts of exchangeable aluminum that has a charge

exchangeable acidity in soils. Exchangeable acidity is determined by the pH of the soil. Titratable acidity is the amount of acidity neutralized to a selected pH, generally pH 7 or 8.2, and constitutes the total potential acidity of a soil determined up to a given pH. All sources of soil acidity, including hydrolysis of monomeric and polymeric aluminum species and hydrogen from pH-dependent exchange sites on metal oxides, layer silicates, and organic matter, contribute to the total potential acidity. Total potential acidity in soils is determined by titration with base or incubation with lime; extraction with a buffered extractant followed by titration of the buffered extractant (pH 8.2, barium chloride-triethanolamine method); or equilibration with buffers followed by estimation of acidity from changes in buffer pH.

Many of the soils of Caldwell Parish have a low pH, significant quantities of exchangeable aluminum, and have high levels of total acidity. Examples are the Frizzell, Guyton, Savannah, and Sacul soils. The exchangeable aluminum levels are high enough to limit crop production. High levels of exchangeable aluminum in the surface layer can be reduced by liming, but no economical methods are available to neutralize soil acidity at depth. Exchangeable aluminum levels can be reduced by applying gypsum so that calcium leaches through the soil profile and exchanges with the aluminum.

Cation exchange capacity. The cation-exchange capacity represents the available supply of nutrient and non-nutrient cations in the soil. It is the amount of cations on permanent and pH-dependent negatively

The effective cation exchange capacity is the sum of

Most determinations, except those for grain size

Classification of the Soils

The system of soil classification used by the National group. An example is Typic Hapludalfs. The formative

The map units of each soil series are described in the section "Detailed Soil Map Units."

Alligator Series

The Alligator series consists of poorly drained, very slowly permeable soils that formed in clayey alluvium. These soils are on broad flats and in depressional areas on alluvial plains. They are subject to frequent flooding and have a seasonal high water table. Slope is 0 to 1 percent. Soils of the Alligator series are very fine, montmorillonitic, acid, thermic Vertic Haplaquepts.

Alligator soils commonly are near Hebert and Perry soils. Hebert soils are in higher positions than Alligator soils and are loamy throughout. Perry soils are in slightly higher positions and have a nonacid control section.

Typical pedon of Alligator clay, frequently flooded; about 9 miles southeast of Columbia, 4.9 miles south of the intersection of Highways 559 and 4, east 1.2 miles and south 0.7 mile, 209 yards north on pipeline, 15 yards east of pipeline in woods; NW¼NW¼ sec. 22, T. 12 N., R. 5 E.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) clay; weak fine subangular blocky structure; plastic and sticky; many fine roots; very strongly acid; abrupt smooth boundary.

Bg1—4 to 23 inches; gray (10YR 5/1) clay; many fine and medium prominent yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; plastic and sticky; common fine roots; few slickensides; very strongly acid; clear wavy boundary.

Bg2—23 to 40 inches; gray (10YR 5/1) clay; few fine prominent strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; plastic and sticky; few fine roots; few medium slickensides; very strongly acid; clear wavy boundary.

Cg—40 to 60 inches; gray (10YR 5/1) clay; common fine prominent dark yellowish brown (10YR 4/4) mottles; massive; plastic and sticky; slightly acid.

Thickness of the solum ranges from 40 to 60 inches. Reaction of the upper 40 inches of the profile is strongly acid or very strongly acid. Reaction of the profile below

The Bg horizon has hue of 10YR, value of 6, and chroma of 1 or 2; or it has hue of 4 or 5 and chroma of 1. Mottles in shades of brown and yellow range from few to many. Texture is clay or silty clay.

The Cg horizon has colors similar to those of the Bg horizon. Texture is clay, silty clay, or silty clay loam.

Bayoudan Series

The Bayoudan series consists of moderately well drained, very slowly permeable soils that formed in clayey marine sediment of Tertiary age. Slope ranges from 3 to 40 percent. Soils of the Bayoudan series are very fine, montmorillonitic, thermic Aquentic Chromuderts.

Bayoudan soils commonly are near Alligator, Falkner, Guyton, Perry, and Tippah soils. Alligator and Perry soils are on the flood plain of the Ouachita River. Alligator soils are gray throughout the subsoil. Perry soils are gray in the upper part of the solum and reddish in the lower part. Falkner and Tippah soils are mainly on ridgetops at higher elevations than the Bayoudan soils and they are fine-silty. Guyton soils are on the flood plains of small streams and are fine-silty.

Typical pedon of Bayoudan clay, 8 to 40 percent slopes; about 10.8 miles southeast of Columbia, 1.4 miles east on logging road from intersection of logging roads in sec. 12, T. 11 N., R. 4 E., 30 feet south of logging road and 30 feet east of log loading site; SE¼SE¼ sec. 7, T. 11 N., R. 5 E.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) clay; weak medium granular structure; firm, very sticky and very plastic; common medium and fine roots; very strongly acid; abrupt wavy boundary.

A2—2 to 5 inches; brown (10YR 4/3) clay; moderate medium subangular blocky structure; firm, very sticky and very plastic; common medium and fine roots; very strongly acid; clear smooth boundary.

Bw1—5 to 10 inches; strong brown (7.5YR 5/6) clay; moderate medium subangular blocky structure; firm, very sticky and very plastic; common fine and medium roots; few intersecting slickensides; extremely acid; clear smooth boundary.

Bw2—10 to 16 inches; strong brown (7.5YR 5/6) clay; moderate medium subangular blocky structure; firm, subangular blocky structure; firm, very sticky and very plastic; common fine and medium roots and few coarse roots; few intersecting slickensides; extremely acid; clear smooth boundary.

By1—25 to 36 inches; olive (5Y 5/3) clay; moderate very coarse blocky structure; firm, very sticky and very plastic; common fine and medium roots and few coarse roots; few fine gypsum crystals; common intersecting slickensides; extremely acid; gradual smooth boundary.

By2—36 to 72 inches; grayish brown (2.5Y 5/2) clay; moderate very coarse blocky structure; firm, very sticky and very plastic; common fine and medium roots and few coarse roots; few fine gypsum crystals; common intersecting slickensides; slightly acid.

Thickness of the solum is more than 60 inches. Intersecting slickensides range from few to many. The particle-size control section is commonly more than 80 percent clay. The effective cation-exchange capacity is 20 to 50 percent saturated with exchangeable aluminum within a depth of 30 inches.

The A1 and A2 horizons have hue of 10YR, value of 2 to 5, and chroma of 1 to 4. The combined thickness of the A1 and A2 horizons ranges from 2 to 5 inches. Reaction ranges from very strongly acid to slightly acid.

The upper part of the Bw horizon has hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 4 to 5, and chroma of 6 to 8. The lower part has the same range in colors as that of the upper part, or it has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 or 4. Mottles range from

The Brimstone soils are taxadjuncts to the Brimstone series because the reaction of the An, Eng, and Btng/E horizons is higher than is typical for the series. This difference does not significantly affect the use and management of these soils.

Brimstone soils commonly are near Cahaba, Frizzell, Guyton, Prentiss, and Savannah soils. Cahaba, Frizzell, Prentiss, and Savannah soils are in higher positions than the Brimstone soils and do not have a high content of sodium in the subsoil. Cahaba soils are fine-loamy and have a reddish subsoil. Frizzell soils are coarse-silty. Prentiss and Savannah soils have a fragipan. Guyton soils are in positions similar to those of the Brimstone soils and do not have a high content of sodium in the subsoil.

Typical pedon of Brimstone very fine sandy loam in an area of Brimstone-Prentiss association, 0 to 3 percent slopes; about 7 miles west of Columbia, 1.9 miles south of the intersection of Highway 4 and Highway 846, about 0.3 mile west, 41 yards south of fence; NE¼NE¼ sec. 19, T. 13 N., R. 3 E.

An—0 to 7 inches; grayish brown (10YR 5/2) very fine sandy loam; common medium distinct dark yellowish brown (10YR 4/6) mottles; weak medium granular structure; friable; common fine and medium roots; strongly alkaline; clear smooth boundary.

Eng—7 to 21 inches; light brownish gray (10YR 6/2) very fine sandy loam; common fine distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; very friable; common fine and medium roots; common fine and medium common fine and medium black concretions; moderately alkaline; clear smooth boundary.

Btng2—45 to 62 inches; light brownish gray (2.5Y 6/2) silty clay loam; many medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; common fine and medium roots; common fine and medium pores; few thin discontinuous clay films on vertical faces of peds; common fine and medium black concretions; mildly alkaline; clear smooth boundary.

C—62 to 85 inches; gray (N 6/0) fine sandy loam; few greenish gray (5GY 5/1) mottles; friable; moderately alkaline.

Thickness of the solum ranges from 40 to 100 inches. Exchangeable sodium percentage ranges from 15 to 30 within 6 inches of the top of the natric horizon [illegible]

and are fine-loamy. In addition, the Savannah soils have a fragipan.

Typical pedon of Cadeville very fine sandy loam, in an area of Olla-Cadeville association steep; about 9.5 miles north of Columbia, 0.3 mile north of Fellowship Cemetery on Highway 846 to gravel road, right 2.4 miles to north section line of section 9, west about 400 feet from gravel road; NW¼NE¼ sec. 9, T. 14 N., R. 3 E.

A—0 to 3 inches; dark brown (10YR 3/3) very fine sandy loam; weak medium granular structure; very friable; common fine roots; medium acid; clear smooth boundary.

Bt1—3 to 8 inches; yellowish red (5YR 5/6) clay; moderate medium subangular blocky structure; firm, plastic and sticky; common fine roots; shiny ped [illegible] clay. Reaction ranges from extremely acid to strongly acid.

The Btg and Cg horizons are mottled in shades of gray, brown, red, or yellow. Texture is silty clay loam, silty clay, or clay. Reaction ranges from extremely acid to strongly acid.

Cahaba Series

The Cahaba series consists of well drained, moderately permeable soils that formed in sediment of late Pleistocene age. These soils are on stream terraces. Slope ranges from 1 to 3 percent. Soils of the Cahaba series are fine-loamy, siliceous, thermic Typic Hapludults.

Cahaba soils commonly are near Brimstone, Frizzell, Guyton, and Prentiss soils. Brimstone and Guyton soils are in lower positions than the Cahaba soils and are fine-silty and grayish throughout. Frizzell soils are in slightly lower positions and are coarse-silty. Prentiss soils are in slightly lower positions and are coarse-

sandy loam; massive; very friable; very strongly acid.

Thickness of the solum ranges from 36 to 60 inches. Reaction throughout the profile ranges from very strongly acid to medium acid.

The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4. Thickness ranges from 4 to 8 inches.

Some pedons have an E horizon that has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4; or hue of 7.5YR, value of 5, and chroma of 6 or 8.

The Bt horizon has hue of 5YR, 2.5YR, or 10R, value of 4 or 5, and chroma of 6 or 8. Texture is sandy clay loam, loam, or clay loam. Clay content ranges from 18 to 35 percent. Silt content ranges from 20 to 50 percent.

The BC horizon is strong brown, yellowish red, or red. Texture is sandy loam or fine sandy loam. The BC horizon is mottled in shades of yellow or brown in some pedons.

The C horizon ranges in color from yellowish brown

A—0 to 5 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; very friable; common fine and medium roots; few fine pores; very strongly acid; clear smooth boundary.

Bt1—5 to 12 inches; yellowish brown (10YR 5/6) silty clay loam; few fine distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots; few fine pores; few faint discontinuous clay films on vertical faces of peds; extremely acid; gradual smooth boundary.

Bt2—12 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; few medium distinct grayish brown (10YR 5/2) mottles and few fine distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots and few coarse roots; few fine pores; few faint discontinuous clay films on vertical faces of peds; few thin silt coatings on vertical faces

chroma 3 or 4. Thickness ranges from 4 to 8 inches.

Some pedons have an E horizon that has hue of 10YR, value of 5 or 6, and chroma of 2 to 4.

The upper part of the Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 6. In some pedons, this horizon contains a few gray mottles. Texture is silt loam or silty clay loam.

The lower part of the Bt horizon has matrix colors similar to those of the Bt1 horizon and contains few to many grayish mottles; or the horizon is mottled gray, red, brown, or yellow. Texture is silt loam or silty clay loam.

The 2Bt horizon has hue of 2.5YR, 5YR, 10YR, or 2.5Y, value of 4 to 6, and chroma of 1 to 6. It has few to many fine to coarse mottles of yellow, brown, gray, or red; or the horizon is mottled in shades of gray, brown, red, or yellow. Texture is silty clay or clay.

Forestdale Series

structure; firm, very sticky and very plastic; common fine and medium roots and few coarse roots; shiny ped faces; very strongly acid; clear smooth boundary.

Btg2—12 to 22 inches; light brownish gray (2.5Y 6/2) clay; common medium prominent strong brown (7.5YR 5/6 and 5/8) mottles; moderate medium subangular blocky structure; firm, very sticky and very plastic; common fine and medium roots; shiny ped faces; very strongly acid; abrupt smooth boundary.

2Btg3—22 to 28 inches; brown (7.5YR 5/2) clay loam; common medium distinct yellowish brown (10YR

The 2Bt horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 2 to 4. Texture is silt loam, silty clay loam, clay loam, or sandy clay loam. Reaction ranges from very strongly acid to mildly alkaline.

Frizzell Series

The Frizzell series consists of moderately well drained, slowly permeable soils that formed in sediment of late Pleistocene age. These soils are on low stream terraces. Slope ranges from 0 to 2 percent. Soils of the Frizzell series are coarse-silty, siliceous, thermic

(7.5YR 5/6) mottles and few medium distinct grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; friable; about 20 percent vertical streaks and pockets of light gray (10YR 7/2) silt loam (E); common fine and medium roots; common fine pores; common thin discontinuous clay films on vertical faces of peds; few fine soft brown and black concretions; strongly acid; clear smooth boundary.

Bt1—35 to 51 inches; yellowish brown (10YR 5/6) silty clay loam; many medium distinct grayish brown (10YR 5/2) mottles and many medium faint yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; friable; common fine roots; few fine pores; common thin discontinuous clay films on vertical faces of peds; few fine brown and black concretions; very strongly acid; gradual smooth boundary.

Bt2—51 to 72 inches; yellowish brown (10YR 5/6) loam; few medium distinct strong brown (7.5YR 5/6) mottles; weak moderate subangular blocky structure; friable; common fine roots; few fine pores; common thin discontinuous clay films on vertical faces of peds; few fine brown and black concretions; common vertical seams of light brownish gray (10YR 6/2) clay loam between major structural breaks; very strongly acid.

Thickness of the solum ranges from 60 to 80 inches. Base saturation in the Bt2 horizon is 35 to 60 percent. The effective cation-exchange capacity is 50 percent or more saturated with exchangeable aluminum within 30 inches of the soil surface. Reaction throughout the profile is very strongly acid or strongly acid except where lime has been added to the soil.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Thickness ranges from 2 to 4 inches.

The Bt part of the B/E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 6. The E part has hue of 10YR, value of 5 to 7, and chroma of l to 3. Texture of both the Bt and E parts of the B/E horizon is silt loam or loam. The B/E horizon has common to many mottles in shades of gray. The E part of the B/E horizon is less clayey than the Bt part and occurs as

loam. Grayish mottles range from few to many.

Gallion Series

The Gallion series consists of well drained, moderately permeable soils that formed in loamy alluvium. These soils are on natural levees of the Ouachita River and in abandoned channels of the Arkansas River. Slope ranges from 0 to 1 percent. Soils of the Gallion series are fine-silty, mixed, thermic Typic Hapludalfs.

Gallion soils commonly are near Hebert, Perry, Sterlington, and Rilla soils. Hebert and Perry soils are in lower positions than the Gallion soils. Hebert soils have a subsoil that has grayish ped coatings. Perry soils have a very fine-textured particle-size control section. Rilla and Sterlington soils are in positions similar to those of the Gallion soils. Rilla soils are more acid throughout the profile than the Gallion soils. Sterlington soils are coarse-silty.

Typical pedon of Gallion silt loam; about 4 miles northeast of Columbia, 18 steps northwest of Highway 133; NE¼SW¼ sec. 29, T. 14 N., R. 5 E.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; very friable; common fine roots; neutral; abrupt smooth boundary.

A—5 to 9 inches; dark brown (10YR 4/3) silt loam; weak medium subangular blocky structure; very friable; common fine roots; few fine pores; neutral; gradual smooth boundary.

Bt1—9 to 23 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; few fine pores; common thin continuous clay films on vertical faces of peds; neutral; clear smooth boundary.

Bt2—23 to 31 inches; dark brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; very friable; common fine roots; few fine pores; common thin discontinuous clay films on vertical faces of peds; slightly acid; clear smooth boundary.

BC—31 to 46 inches; strong brown (7.5YR 5/6) very fine sandy loam; weak medium subangular blocky or 5, and chroma of 2 to 4. Total thickness is 6 to 12 inches. Reaction ranges from medium acid to neutral.

The Bt horizon has hue of 7.5YR or 5YR, value of 3 to 5, and chroma of 3 to 6. Texture is silt loam or silty clay loam. Reaction ranges from medium acid to mildly alkaline.

The BC and C horizons have colors similar to those of the Bt horizon. Texture is silt loam, loam, very fine sandy loam, or silty clay loam. Concretions of carbonates range from none to common in the BC and C horizons. Reaction ranges from medium acid to moderately alkaline.

Gore Series

The Gore series consists of moderately well drained, very slowly permeable soils that formed in sediment of Pleistocene age. These soils are on uplands. Slope ranges from 2 to 5 percent. Soils of the Gore series are fine, mixed, thermic Vertic Paleudalfs.

These soils are taxadjuncts to the Gore series because the reaction of the Ap, Bt1, and Bt2 horizons is slightly lower and the color of brown in the BC horizon is not typical for the series. These differences do not significantly affect the use and management of these soils.

Gore soils commonly are near Falkner soils. Falkner soils are in higher positions and are fine-silty

moderate medium subangular blocky structure; firm, very plastic and very sticky; few fine roots; common faint discontinuous clay films on faces of peds; few black stains on ped faces; very strongly acid; gradual smooth boundary.

BC—40 to 71 inches; brown (10YR 4/3) silty clay; common medium distinct yellowish brown (10YR 5/6) and grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; firm, plastic and sticky; few fine roots; neutral.

Thickness of the solum ranges from 60 to 80 inches. The effective cation-exchange capacity is 20 to 50 percent saturated with exchangeable aluminum within a depth of 30 inches.

The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. Thickness ranges from 2 to 6 inches. Reaction ranges from extremely acid to medium acid.

The upper part of the Bt horizon has hue of 5YR, value of 3 to 5, and chroma of 4 to 6. The lower part has hue of 7.5YR, value of 5 or 6, and chroma of 4 or 6. Mottles in shades of red, brown, or gray range from none to common. Texture of the Bt horizon is clay or silty clay. Reaction ranges from extremely acid to medium acid.

The BC horizon has hue of 10YR, value of 4 or 5, of the Guyton soils, and they have a browner subsoil.

Typical pedon of Guyton silt loam, in an area of Guyton and Ouachita silt loams, frequently flooded; about 8 miles south of Columbia, 2.6 miles southeast on Highway 126 from Holum Baptist Church to Black Bayou, left 0.9 mile on parish road, 37 yards east of road culverts and 44 yards north of road; NE¼SW¼ sec. 34, T. 11 N., R. 4 E.

A—0 to 4 inches; grayish brown (10YR 5/2) silt loam; common fine distinct brown (7.5YR 5/4) mottles; weak medium granular structure; very friable; common fine and medium roots; few fine pores; few fine and medium black and brown concretions; extremely acid; clear smooth boundary.

Eg1—4 to 16 inches; grayish brown (10YR 5/2) silt loam; common fine distinct yellowish brown (10YR 5/6) mottles; massive; very friable; common fine and medium roots; few fine pores; few fine and medium concretions; extremely acid; gradual smooth boundary.

Eg2—16 to 24 inches; light brownish gray (10YR 6/2) silt loam; few fine distinct light olive brown (2.5Y 5/4) mottles; massive; very friable; common fine and [illegible] fine pores; few fine and medium

saturated with exchangeable aluminum within a depth of 30 inches.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Thickness ranges from 2 to 7 inches. Reaction ranges from extremely acid to medium acid except where lime has been added to the soil.

The E horizon and E part of the B/E horizon have hue of 10YR, value of 5 to 7, and chroma of 1 or 2. Mottles in shades of brown or yellow range from few to many. Thickness of the E horizon ranges from 12 to 24 inches. Reaction ranges from extremely acid to medium acid.

The Btg1 horizon and the Bt part of the B/E horizon have hue of 10YR, value of 5 or 6, and chroma of 1 or 2. The Btg2 horizon has colors similar to those of the Btg1 horizon and has chroma of 3 or 4. Texture is silt loam or silty clay loam. Mottles in shades of brown range from few to many. Reaction ranges from extremely acid to medium acid.

Hebert Series

The Hebert series consists of somewhat poorly drained, moderately slowly permeable soils that formed in loamy alluvium. These soils are on flood plains, and common fine roots; slightly acid; abrupt smooth boundary.

Bt1—6 to 13 inches; light brownish gray (10YR 6/2) clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; very friable; common fine roots; slightly acid; abrupt wavy boundary.

Bt2—13 to 21 inches; pale brown (10YR 6/3) silt loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; very friable; common fine roots; light brownish gray (10YR 6/2) silt coatings on faces of peds; medium acid; abrupt wavy boundary.

Bt3—21 to 35 inches; reddish brown (5YR 5/4) silt loam; common fine and medium distinct yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; common fine roots;

value of 4 to 6, and chroma of 2 to 4. Texture is silt loam, loam, clay loam, or silty clay loam. Typically, peds have silt coatings as thick as 1 millimeter. Coated peds have chroma of 1 or 2. Reaction ranges from very strongly acid to slightly acid.

The BC and C horizons have the same range in colors as the Bt horizon. Texture is very fine sandy loam, silt loam, or silty clay loam. Reaction ranges from strongly acid to mildly alkaline.

Iuka Series

The Iuka series consists of moderately well drained, moderately permeable soils that formed in loamy alluvium. These soils are on flood plains. They are subject to frequent flooding and have a seasonal high water table. Slope is less than 1 percent. The soils of

Ap and A horizons ranges from 5 to 12 inches. Clay content of the particle-size control section ranges from 10 to 18 percent. Some pedons have a buried A horizon within a depth of 20 inches.

The C1 horizon has hue of 10YR, value of 4 to 6, and chroma of 3 to 6; or value of 4 and chroma of 2. Mottles that have chroma of 2 or less are within 20 inches of the surface. Texture is sandy loam, fine sandy

medium subangular blocky structure; friable; few thin discontinuous clay films on vertical faces of peds; few fine roots; few thin streaks of pale brown (10YR 6/3) loamy fine sand; strongly acid.

Thickness of the solum is more than 60 inches. The effective cation-exchange capacity is 20 to 50 percent saturated with exchangeable aluminum within 30 inches few coarse roots; few fine pores; common thin continuous clay films on faces of peds and in pores; very strongly acid; gradual smooth boundary.

Bt2—16 to 24 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots and few medium and coarse roots; few fine pores; common thin continuous clay films on faces of peds and in pores; very strongly acid, clear smooth boundary.

Bt3—24 to 38 inches; yellowish brown (10YR 5/6) fine sandy loam; few medium distinct pale brown (10YR 6/3) mottles and few coarse distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; very friable; common fine roots and few medium and coarse roots; few fine pores; few faint thin discontinuous clay films on faces of

clay loam, sandy clay loam, or clay. Reaction ranges from extremely acid to strongly acid.

The C horizon has hue of 10YR, value of 5 to 7, and chroma of 2 to 4; or it has hue of 2.5Y, value of 5 or 6, and chroma of 2 to 4. Texture is stratified sand, very fine sandy loam, fine sandy loam, silt loam, sandy clay, or clay. Reaction ranges from extremely acid to strongly acid.

Ouachita Series

The Ouachita series consists of well drained, moderately slowly permeable soils that formed in loamy alluvium. These soils are on flood plains and are subject to frequent flooding. Slope is generally less than 1 percent. The soils of the Ouachita series are fine-silty, C—65 to 72 inches; light brownish gray (10YR 6/2) silty clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; massive; friable; strongly acid.

Thickness of the solum ranges from 40 to about 80 inches. The effective cation exchange capacity is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches. Reaction throughout the profile is very strongly acid or strongly acid except where lime has been added to the soil.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. Thickness ranges from 5 to 20 inches.

The Bw horizon has hue of 10YR, value of 4 to 6, and chroma of 3 to 8. Some pedons have mottles with chroma of less than 2 below a depth of 24 inches. Texture is silt loam, loam, silty clay loam, or clay loam. The Bw horizon contains 18 to 30 percent clay and less than 15 percent sand that is coarser than very fine.

The C horizon is brownish. Texture is silt loam, silty clay loam, fine sandy loam, or loamy fine sand.

Perry Series

The Perry series consists of poorly drained, very slowly permeable soils that formed in clayey alluvium. These soils are in low positions on natural levees. They have a seasonal high water table. Areas not protected are subject to flooding. Slope ranges from 0 to 3 percent. Soils of the Perry series are very fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts.

The Perry soils commonly are near Alligator, Gallion, Hebert, Portland, and Rilla soils. Alligator soils are in slightly lower positions than the Perry soils and are

Bg2—11 to 19 inches; gray (10YR 5/1) clay; many fine and medium prominent strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; sticky and plastic; few fine roots; common slickensides; strongly acid; clear wavy boundary.

2BC—19 to 46 inches; reddish brown (5YR 4/3) clay; weak medium subangular blocky structure; sticky and plastic; common slickensides; common medium concretions of carbonates; moderately alkaline; clear wavy boundary.

2C—46 to 60 inches; reddish brown (5YR 4/3) clay; massive; sticky and plastic; many concretions of carbonates; moderately alkaline.

Thickness of the solum ranges from 36 to 60 inches. Cracks 0.25 to 0.75 inch wide form to a depth of 20 inches or more in most years.

The Ap horizon has hue of 10YR, value of 3 to 6, and chroma of 1 or 2. Texture is clay or silty clay loam. Thickness ranges from 4 to 9 inches. Reaction ranges from very strongly acid to medium acid.

The Bg horizon has hue of 10YR, value of 4 to 6, and chroma of 1. Mottles in shades of brown range from few to many. Texture is clay or silty clay. Reaction ranges from strongly acid to neutral.

The 2BC horizon has hue of 5YR, value of 3 or 4, and chroma of 2 to 4. Reaction ranges from slightly acid to moderately alkaline.

The 2C horizon has hue of 5YR, 10YR, or 7.5YR, value of 4 or 5, and chroma of 1 to 4. It is calcareous and contains few to many concretions of carbonates. Reaction ranges from slightly acid to moderately alkaline.

Hebert, and Rilla soils are in higher positions and are loamy throughout.

Typical pedon of Portland clay; about 7.5 miles north of Columbia, north 1.5 miles on gravel road from Highway 847 at Cane Hill, west 0.75 mile on field road to intersection, north 100 steps from intersection, 12 yards west of field road; SW¼NW¼ sec. 9, T. 14 N., R. 4 E.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) clay; massive; very sticky and very plastic; few fine roots; neutral; abrupt smooth boundary.

Bw1—5 to 14 inches; dark brown (7.5YR 4/4) clay; few fine distinct grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; very sticky and very plastic; few fine roots; neutral; clear smooth boundary.

Bw2—14 to 28 inches; reddish brown (5YR 4/4) clay; weak medium subangular blocky structure; very sticky and very plastic; common fine concretions of carbonates; moderately alkaline; gradual smooth boundary.

Bw3—28 to 52 inches; reddish brown (5YR 4/4) clay; weak medium subangular blocky structure; very sticky and very plastic; common fine and medium concretions of carbonates; few slickensides;

ranges from slightly acid to moderately alkaline.

Prentiss Series

The Prentiss series consists of moderately well drained, moderately permeable soils that have a fragipan. These soils are on low stream terraces near major streams. They formed in loamy sediment of late Pleistocene age. These soils have a seasonal high water table. Slope ranges from 0 to 3 percent. Soils of the Prentiss series are coarse-loamy, siliceous, thermic Glossic Fragiudults.

The Prentiss soils in Caldwell Parish are taxadjuncts to the Prentiss series because they have an argillic horizon and do not have the glossic properties required for Glossic Fragiudults. These differences do not affect the use and management of these soils.

Prentiss soils commonly are near Brimstone, Cahaba, Frizzell, Guyton, and Savannah soils. Brimstone and Guyton soils are in lower positions than the Prentiss soils, and they are fine-silty and do not have a fragipan. Cahaba, Frizzell, and Savannah soils are in higher positions. Cahaba and Savannah soils are fine-loamy. In addition, Cahaba soils do not have a fragipan. Frizzell soils do not have a fragipan.

Typical pedon of Prentiss fine sandy loam, in an area

5/4) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle; seams of grayish brown (10YR 5/2) very fine sandy loam ¼ to 1½ inches wide between prisms; few fine roots in seams; few fine pores; few fine and medium black concretions; few thin discontinuous clay films on vertical faces of peds; strongly acid; gradual smooth boundary.

Btx2—37 to 51 inches; yellowish brown (10YR 5/4) loam; few medium distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle; seams of grayish brown (10YR 5/2) very fine sandy loam ¼ to ¾ inch wide between prisms; few fine roots in seams; few fine pores; few fine and medium black concretions; few thin discontinuous clay films on faces of peds; strongly acid; gradual smooth boundary.

Btx3—51 to 64 inches; yellowish brown (10YR 5/4) loam; common medium distinct grayish brown (10YR 5/2) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm and brittle seams of grayish brown (10YR 5/2) silt loam ¼ to ⅛ inch wide between prisms; few fine roots in seams; few fine pores; few fine and medium black concretions; few thin discontinuous clay films on faces of peds; strongly acid; clear smooth boundary.

C—64 to 84 inches; stratified yellowish brown (10YR 5/4) loam and light brownish gray (10YR 6/2) very fine sandy loam; common medium faint yellowish brown (10YR 5/6) mottles; massive; very friable; very strongly acid.

Thickness of the solum is 60 inches or more. Depth to the fragipan ranges from 20 to 32 inches. Reaction throughout the profile is very strongly acid or strongly acid except where lime has been added to the soil. The effective cation-exchange capacity is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3; or value of 4 and chroma of 1; or value of 5 and chroma of 6. Thickness ranges from 5 to 8 inches.

The Bw horizon has hue of 10YR, value of 5 or 6, and chroma of 3, 4, or 6; or hue of 2.5Y, value of 5 or 6, and chroma of 4 or 6. Texture is loam, fine sandy loam, sandy loam, or silt loam. Mottles that have chroma of 2 or less are 16 inches or more below the surface.

The Btx horizon has colors similar to those of the Bw horizon, or it is mottled in shades of brown, yellow, red, and gray. Texture is loam, sandy loam, or fine sandy loam. Most pedons contain few to many iron and manganese concretions.

The C horizon typically is stratified loam, very fine sandy loam, fine sandy loam, or sandy loam. Some pedons do not have a C horizon.

Providence Series

The Providence series consists of moderately well drained, moderately slowly permeable soils that have a fragipan. These soils formed in a thin mantle of loess and the underlying loamy sediment. They are on uplands and on low stream terraces. These soils have a seasonal high water table. Slope ranges from 0 to 5 percent. Soils of the Providence series are fine-silty, mixed, thermic Typic Fragiudalfs.

Providence soils commonly are near Falkner, Frizzell, Guyton, Sacul, Savannah, and Tippah soils. Falkner, Sacul, Savannah, and Tippah soils are in positions similar to those of the Providence soils. Frizzell and Guyton soils are in lower positions. Of these soils, only the Savannah soils have a fragipan. Savannah soils are fine-loamy.

Typical pedon of Providence silt loam, 1 to 5 percent slopes; about 9 miles south of Columbia, 0.6 mile south on gravel road from Little Star Cemetery on Highway 849, west about 400 feet, 45 yards southeast of gate on fence row; NW¼NE¼ sec. 6, T. 11 N., R. 4 E.

A—0 to 2 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

E—2 to 6 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; common fine faint yellowish brown mottles; friable; many fine and medium roots; very strongly acid; gradual smooth boundary.

Bt1—6 to 16 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine pores; common distinct discontinuous clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2—16 to 24 inches; yellowish brown (10YR 5/6) silt loam; common medium faint yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine pores; common distinct discontinuous clay films on faces of peds; very strongly acid; clear

inches. Some pedons have an Ap or A2 horizon that

Bt1—10 to 18 inches; dark brown (7.5YR 4/4) silty clay loam; few medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; common fine roots; few fine pores;

5YR, value of 4 or 5, and chroma of 4 to 6. Texture is silt loam, loam, silty clay loam, or clay loam. Reaction ranges from very strongly acid to slightly acid.

sandy loam (Bt); massive; very friable; about 35 percent 0.5- to 1.5-inch pockets of light yellowish brown (10YR 6/4) fine sandy loam (E); strongly acid; clear smooth boundary.

B't1—68 to 84 inches; mottled red (2.5YR 4/8), yellowish red (5YR 5/6), and light brownish gray (10YR 6/2) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; common thin discontinuous clay films on faces of peds; very strongly acid.

Thickness of the solum is 60 inches or more. The

Ruston soils are on narrow ridgetops and are fine-loamy.

Typical pedon of Sacul fine sandy loam, moderately sloping; about 4 miles west of Columbia, 4.2 miles west on Highway 4 from intersection with Highway 165, about 0.1 mile east of intersection with gravel road in road cut on south side of Highway 4; SW¼SE¼ sec. 15, T. 13 N., R. 3 E.

A—0 to 1 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

range from 1 to 10 percent, by volume. The effective cation-exchange capacity is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The Ap or A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. Thickness ranges from 1 to 4 inches.

The E horizon has hue of 10YR, value of 4 to 6, and chroma of 3 or 4. Texture is fine sandy loam, loam, or

Bt1—9 to 20 inches; strong brown (7.5YR 5/6) sandy clay loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; few fine pores; few fine, medium, and coarse concretions; common thin discontinuous clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—20 to 29 inches; yellowish brown (10YR 5/6) loam;

saturated with exchangeable aluminum within a depth of 30 inches.

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

sandy loam; weak medium granular structure; very friable; common fine and medium roots; strongly acid; clear wavy boundary.

Bt1—14 to 38 inches; yellowish red (5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine, medium, and coarse

Sterlington Series

The Sterlington series consists of well drained, moderately permeable soils that formed in loamy alluvium. These soils are on natural levees of major streams and distributaries. Slope ranges from 0 to 2 percent. Soils of the Sterlington series are coarse-silty, mixed, thermic Typic Hapludalfs.

Sterlington soils in Caldwell Parish are taxadjuncts to the Sterlington series because the reaction of the Bt horizon is slightly lower than allowed for the series. This difference, however, does not significantly affect the use and management of the soils.

Sterlington soils commonly are near Gallion, Hebert, and Rilla soils. Gallion and Rilla soils are in positions similar to those of the Sterlington soils and they are fine-silty. Hebert soils are in lower positions and are fine-silty.

Typical pedon of Sterlington silt loam; about 2.2 miles north of Columbia, about 0.6 mile east of Davis Lake, 18 feet east of Bell Bayou in a field; SE¼NW¼ sec. 3, T. 13 N., R. 4 E.

Ap—0 to 7 inches; brown (10YR 5/3) silt loam; weak medium granular structure; very friable; few fine roots; medium acid; clear smooth boundary.

A—7 to 10 inches; dark brown (10YR 4/3) silt loam; weak medium subangular blocky structure; very friable; few fine roots; strongly acid; clear smooth boundary.

Bt—10 to 23 inches; strong brown (7.5YR 5/6) very fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; few fine pores; few thin discontinuous clay films on faces of peds; very strongly acid; clear smooth boundary.

B/E—23 to 30 inches; strong brown (7.5YR 5/6) (Bt); and light brown (7.5YR 6/4) (E) very fine sandy loam; about 25 percent E material; weak medium subangular blocky structure; very friable; few fine roots; few fine pores; very strongly acid; clear smooth boundary.

B't—30 to 53 inches; reddish brown (5YR 5/4) loam; few fine distinct yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; very

The effective cation-exchange capacity is 20 to 50 percent saturated with exchangeable aluminum within a depth of 30 inches.

The Ap and A horizons have hue of 10YR, value of 3 or 4, and chroma of 2 or 3; or value of 5 and chroma of 3. Texture of the A horizon is fine sandy loam, very fine sandy loam, or silt loam. Reaction in the Ap and A horizons ranges from very strongly acid to medium acid except where lime has been added to the soil.

The Bt horizon and the Bt part of the B/E horizon have hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 to 6. At least one subhorizon has hue of 5YR. Reaction ranges from very strongly acid to slightly acid. Subhorizons contain ped coatings and pockets of E material that make up less than 30 percent of the horizon. The E material has colors with chroma of 3 or more. It has value that is 1 or 2 units higher or chroma that is 1 or 2 units lower than those in the Bt horizon. Texture of the Bt and B/E horizons is loam, silt loam, or very fine sandy loam.

The C horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 to 6. Texture is very fine sandy loam, silt loam, loam, or silty clay loam. Reaction ranges from strongly acid to moderately alkaline.

Tippah Series

The Tippah series consists of moderately well drained, slowly permeable soils that formed in a thin mantle of loess and the underlying clayey sediment. These soils are on uplands. They have a seasonal high water table. Slope ranges from 1 to 5 percent. The soils of the Tippah series are fine-silty, mixed, thermic Aquic Paleudalfs.

Tippah soils commonly are near Bayoudan, Falkner, and Providence soils. Bayoudan soils are on lower side slopes and are clayey throughout the solum. Falkner soils are on less convex slopes than the Tippah soils, and they are wetter and have a subsoil that has hue of 10YR or 2.5Y. Providence soils are in positions similar to those of the Tippah soils, and they have a fragipan.

Typical pedon of Tippah silt loam, 1 to 5 percent slopes; about 12 miles southwest of Columbia, 0.8 mile strongly acid; clear smooth boundary.

Bt1—5 to 15 inches; yellowish red (5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds; common fine pores; very strongly acid; gradual smooth boundary.

Bt2—15 to 26 inches; strong brown (7.5YR 5/6) silty clay loam; common fine and medium distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; common fine pores; strongly acid; gradual smooth boundary.

Bt3—26 to 34 inches; strong brown (7.5YR 5/6) silty clay loam; many medium prominent light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; common fine pores; strongly acid; abrupt smooth boundary.

2Bt4—34 to 45 inches; mottled yellowish brown (10YR 5/6), yellowish red (5YR 5/8), and brown (10YR 5/3) silty clay; few medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm, plastic and sticky; few faint clay films on faces of peds; strongly acid; gradual smooth boundary.

2Bt5—45 to 60 inches; mottled yellowish brown (10YR 5/6), yellowish red (5YR 5/6), and light brownish gray (10YR 6/2) clay; firm, very plastic and very sticky; moderate medium subangular blocky structure; few faint clay films on faces of peds; very strongly acid.

Thickness of the solum is 60 inches or more. Reaction throughout the profile ranges from very strongly acid to medium acid. The effective cation-exchange capacity is 50 percent or more saturated with exchangeable aluminum within a depth of 30 inches.

The Ap horizon has hue of 10YR, value of 4 to 6, and chroma of 2 to 6. Undisturbed pedons have an A horizon that has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. Where the value is 3, the A horizon is less than 6 inches thick. Thickness of the Ap or A horizon ranges from 2 to 8 inches.

Some pedons have an E horizon that has hue of 10YR, value of 4 to 6, and chroma of 2 to 6. Texture is have chroma of 2 or less are within 30 inches of the soil surface. Texture is silty clay loam or silt loam.

The 2Bt horizon has a matrix ranging from red to gray. Mottles are in shades of red, gray, brown, or yellow. Texture is silty clay or clay.

Yorktown Series

The Yorktown series consists of very poorly drained, very slowly permeable soils that formed in clayey alluvium. These soils are in old channels on flood plains. They are ponded most of the time and are frequently flooded. Slope is less than 1 percent. Soils of the Yorktown series are very fine, montmorillonitic, nonacid, thermic Typic Fluvaquents.

The Yorktown soils in Caldwell Parish are taxadjuncts to the Yorktown series because the reaction of the A and Bg1 horizons is slightly lower than allowed in the range in characteristics for the series. This difference, however, does not significantly affect the use and management of the soils.

Yorktown soils commonly are near Alligator, Gallion, Hebert, Perry, Rilla, and Sterlington soils. All of these soils are in higher positions on the flood plain than the Yorktown soils. Alligator and Perry soils crack to a depth of 20 inches or more. Gallion, Hebert, Rilla, and Sterlington soils are loamy throughout.

Typical pedon of Yorktown clay, frequently flooded; about 5.5 miles east of Columbia, 3.5 miles south from intersection at Highway 848 in sec. 29, T. 14 N., R. 5 E., 120 feet east of gravel road in cypress-tupelo brake; NE¼NW¼ sec. 8, T. 13 N., R. 5 E.

Oa—0 to 3 inches; very dark grayish brown (10YR 3/2) muck; very fluid; common fine and medium roots and few coarse roots; very strongly acid; abrupt smooth boundary.

A—3 to 10 inches; gray (5Y 5/1) clay; structureless; firm, very sticky and very plastic; common fine and medium roots and few coarse roots; very strongly acid; gradual smooth boundary.

Bg1—10 to 23 inches; dark gray (N 4/0) clay; few fine prominent strong brown (7.5YR 5/6) mottles; massive; firm, very sticky and very plastic; common fine and medium roots and few coarse roots; few pieces of partly decayed wood; very strongly acid; gradual smooth boundary.

roots; few pieces of partly decayed wood; neutral; gradual smooth boundary.

Bg3—38 to 59 inches; mottled gray (N 5/0), dark gray (N 4/0), and greenish gray (5BG 5/1) clay; massive; firm, very plastic and very sticky; common fine and medium roots and few coarse roots; few pieces of partly decayed wood; neutral; abrupt smooth boundary.

BC—59 to 72 inches; reddish brown (5YR 4/4) clay;

decayed plant material is on the surface of most pedons.

The Bg1 and Bg2 horizons have hue of 5Y, value of 4 to 6, and chroma of 1; hue of 10YR, value of 4 to 6, and chroma of 1; or they are neutral and have value of 4 or 5. Few to many fine or medium mottles having hue of 5YR, value of 4 or 5, and chroma of 6 or 8 are in the Bg1 and Bg2 horizons. Reaction in the Bg1 horizon ranges from very strongly acid to neutral. Reaction

Formation of the Soils

In this section, the processes and factors of soil formation are discussed and related to the soils in Caldwell Parish.

Processes of Soil Formation

The processes of soil formation influence the kind and degree of development of soil horizons. The factors of soil formation—parent material, climate, living organisms, relief, and time—determine the rate and

sediment provides new parent material for soil formation. Often, new material accumulates faster than the processes of soil formation can appreciably alter it. The evident depositional strata in the Iuka soils are a result of accumulation. Alluvial sediment is also being added in flooded areas of the Alligator, Forestdale, Guyton, Hebert, Ouachita, Perry, and Yorktown soils.

Plant roots and living organisms are effective agents in rearranging soil material into secondary aggregates. Decomposed products or organic residue, secretions of calcium carbonate. In most places, pedons of these soils have free calcium carbonate in the lower part of the profile. All of the other soils in the parish, except the Brimstone soils, are typically acid throughout. The Brimstone soils are moderately alkaline or strongly alkaline in the subsoil because sodium salts, rather than carbonates, have accumulated in the subsoil.

The formation, translocation, and accumulation of clay are processes that have helped develop all of the soils in the parish except for the Alligator, Bayoudan, Iuka, Ouachita, Perry, Portland, and Yorktown soils. Silicon and aluminum, released as a result of weathering of pyroxenes, amphiboles, and feldspar, can recombine with the components of water to form secondary clay minerals, such as kaolinite. Layer silicate minerals, such as mica and montmorillonite, can also weather to form other clay minerals, such as vermiculite or kaolinite. Horizons of secondary accumulation of clay result largely from translocation of clays from upper to lower horizons. As water moves downward, it can carry small amounts of clay in suspension. This clay is deposited, and it accumulates at the depths of the water penetration or in horizons where it becomes flocculated or filtered out by fine pores in the soil. Over long periods, such processes can result in distinct horizons of clay accumulation. Secondary accumulation of calcium carbonate occurs in the lower part of the solum in some of the soils. Carbonates dissolved from overlying horizons have been translocated to this depth by water and redeposited. Calcium carbonate is present in the lower part of the Perry, Portland, and Yorktown soils in most locations.

Factors of Soil Formation

Soil is produced by soil-forming processes acting on material deposited or accumulated by geologic forces.

The characteristics of the soil at any given point are determined by the physical properties and the chemical and mineralogical composition of the parent material, the climate during the formation of the soil from the parent material, the plant and animal life on and in the soil, the relief, and the length of time for these forces of soil formation to act on the soil material *(9)*.

Climate and plant and animal life, mainly plants, are active factors of soil formation. These factors act on the parent material through alluvial deposition and slowly change it to a natural body that has genetically related layers. The effects of climate and plant and animal life are conditioned by relief. The parent material also affects the kind of soil profile that is formed and, in some cases, determines it almost entirely. Time is needed to change the parent material into a soil profile. In most cases, a very long time is needed to develop distinct soil layers. If the climate is warm and moist, soil layers develop more rapidly than in a cooler, drier climate.

The factors of soil formation are so closely interrelated in their effects on the soil that few generalizations of any one factor can be made unless conditions are specified for the other four. In the following paragraphs the factors of soil formation are discussed as they relate to soils in the parish.

Climate

Caldwell Parish is in a region characterized by a humid, subtropical climate. Detailed information about climate is in the section "General Nature of the Parish."

A relatively uniform climate throughout the parish does not account for differences among the soils within the parish. The warm, moist climate promotes rapid soil formation. High precipitation rates promote rapid weathering of readily weatherable minerals and the movement of colloidal material downward in the soil. Plant remains decompose rapidly in the warm climate, preventing the formation of soils that have high organic matter content. The organic acids produced by decomposition hasten development of clay minerals and removal of carbonates. Soil development is increased because of the intensity of the soil forming processes in the warm, moist climate.

Living Organisms

Plants, animals, insects, bacteria, fungi, other micro-organisms, and man are important in the formation of the soils of Caldwell Parish. Plant growth and animal activity physically alter the soil. Land clearing and cultivation of crops also physically alter the surface layer of the soils.

The native vegetation on bottom lands and on low terraces of the parish was primarily hardwood forests. Native vegetation on the uplands was primarily mixed hardwood and pine forests. Soils developed under mixed hardwood and pine forests generally are lower in organic matter content and have a more distinct E horizon than soils developed under hardwood forests.

Bacteria, fungi, and other micro-organisms are primarily responsible for decomposition of organic matter and oxidation-reduction reactions that affect the physical and chemical properties of the soils. Aerobic bacteria are more abundant in well drained soils and decompose organic matter rapidly. Anaerobic bacteria are more abundant in poorly drained soils and decompose organic matter slowly. As a result, organic matter content is lower in well drained soils than in those that are poorly drained.

Parent Material

Parent material is the mass from which soil develops. It affects the color, texture, permeability, mineralogy, and the erosion potential of the soil.

The soils of Caldwell Parish formed in alluvium deposited by the Mississippi, Arkansas, and Ouachita Rivers and by local streams. They also formed in windblown material (loess) and Pleistocene and Tertiary sediment of the Citronelle, Cockfield, Deweyville, Prairie, and Jackson Formations *(8, 13)*.

The characteristics, distribution, and depositional pattern of the parent material in the parish are discussed in the section "Landforms and Surface Geology."

Relief

Relief influences soil formation by affecting soil drainage, runoff, erosion, deposition, and soil temperature. The influence of relief on soils in Caldwell Parish is especially evident in the runoff rate, internal soil drainage, and depth to a seasonal high water table. For example, relief on the Providence and Tippah soils that formed in loess is higher than that on the Falkner soils. The Tippah soils have gentle slopes and are moderately well drained. Runoff is medium, and the seasonal high water table is at a depth of more than 2 feet. The Falkner soils have nearly level slopes and are somewhat poorly drained. Runoff is slow, and a seasonal high water table fluctuates between a depth of about 1.5 to 2.5 feet.

In some areas of the uplands, the relief is great and slopes are steep. Runoff is rapid, and little water enters the soil. In these areas, erosion occurs on soils at rates nearly equal to soil formation. These factors account for

fully developed the soil profile becomes. In Caldwell Parish, parent material ranges in age from a few hundred years to many millions of years.

The youngest soils, such as the Alligator, Perry, Portland, and Yorktown soils, formed in recent alluvium that was deposited by overflows from the Mississippi and Arkansas Rivers during the last 500 years. These soils have relatively weakly expressed soil horizons. Other soils, such as the Forestdale, Gallion, Hebert, and Rilla soils, are forming in alluvium that has been in place for as long as 7,000 years. These soils have developed horizons that express features and characteristics associated with processes acting over a longer period.

The soils on the uplands formed in the oldest parent material in the parish. This parent material was deposited by water 20,000 to perhaps 45 million years ago *(8, 13)*.

Landforms and Surface Geology

The soils of Caldwell Parish formed in several kinds of unconsolidated parent material. This parent material can be placed into general groups based on its source, age, and mode of deposition: recent alluvium, loess, late Pleistocene age sediment, early Pleistocene age sediment, and marine sediment of Tertiary age.

The major surface features, geology, and relative ages of the parent material are discussed in the following paragraphs.

Alluvial Plain

The alluvial plain of Caldwell Parish consists primarily of recent sediment from the Ouachita and Arkansas Rivers. In small areas, Pleistocene age terraces and loess are included on the alluvial plain.

Soils of the alluvial plain formed in recent alluvium and make up about 35 percent of the parish. Elevations on the alluvial plain range from about 39 feet above sea backswamps where sediment was deposited by still or

the Ouachita River. The Boeuf River system enters the of Arkansas and Louisiana. The sediment is being deposited primarily in point bar positions along the Ouachita River.

Some pedologists believe that this gray sediment may be responsible for the gray horizons in the upper part of the Hebert and Perry soils, rather than from a gleying of the reddish sediment. Other pedologists hypothesize that alluvium from the Mississippi River may have come down the present Ouachita/Arkansas River Valley from a point north of the Macon Ridge where the Arkansas River converges with the Mississippi River.

Chemical and physical test data in tables 19 and 20 suggest that the Perry soils formed in parent material from more than one source. Particle-size analyses indicate that the ratio of fine clay to clay is 41 percent

Parish. The meandering of stream channels on the flood plain of the Ouachita/Arkansas or Mississippi River system eroded away most of this terrace.

The ridgetop of Perrins Island has been covered with a thin veneer of the same Peorian loess deposited throughout the region about 20,000 to 25,000 years ago *(8)*. The Falkner and Gore soils are on Cane Hill and Perrins Island.

Another terrace on the alluvial plain in Caldwell Parish has been identified as a late Pleistocene age Arkansas River braided stream terrace *(15)*. This terrace is evident along Louisiana Highway 4, about 0.5 mile west of the Boeuf River, and in the river bank below the bridge that crosses the Boeuf River. Most of the terrace is covered with more than 40 inches of clayey alluvium. In places, the clay is less than 40 of Mexico where they are covered with younger sediment. Exposures of the Cockfield Formation are in a larger area than those of the Jackson Group. The Jackson Group is exposed in a small area in the southeastern part of the uplands. Most of the Jackson Group is covered with a veneer of Peorian loess that is 2 to 3 feet thick.

The landscape of the Cockfield Formation differs significantly from that of the Jackson Group. It is deeply dissected by many streams and drainageways, and the ridgetops are relatively narrow and convex. Loess is not evident.

The landscape of the Jackson Group is less dissected than that of the Cockfield Formation and it has fewer streams and drainageways. The ridgetops are generally broad and show little or no erosion. The uniform thickness of the loess over the Jackson Group and the relatively uniform surface elevations indicate that the landscape has been relatively stable.

The Cockfield Formation can be easily seen in road exposures along many of the roads along the Ouachita River Valley escarpment. Two good exposures are along a gravel road in sec. 28, T. 13 N., R. 4 E. about 2 miles south of Columbia. The exposures consist of strata of grayish sand and clay in varying thicknesses.

Soils in Caldwell Parish that formed in parent material of the Cockfield Formation include the Cadeville, Olla, and Sacul soils. The Olla series was first recognized in Caldwell Parish and is mapped on the steep and eroding landscape adjacent to the flood plain of the Ouachita River.

Exposures of the Jackson Group can be seen in road cuts along the Ouachita River Valley escarpment in the Bayou Dan Hills. Several good exposures are along a road in sec. 36, T. 12 N., R. 4 E. about 5 miles east of Holum. Landslides are common in exposed areas of the Jackson Group because of the steep slopes and the nature of the soils. The Jackson Group consists of marine deposits of olive clay. In places, the clay has crystals of gypsum.

Small open areas, 1 to 5 acres in size, that are devoid of most vegetation also have been observed in areas of the Jackson Group. The soil material has large

referred to as Copenhagen Prairie in at least one geology report *(8)*. In this particular area, a natural prairie, probably indicating the existence of a previous grassland, is evident.

The Bayoudan, Falkner, and Tippah soils in Caldwell Parish formed in parent material of the Jackson Group. The Falkner and Tippah soils formed in thin loess and the underlying sediment of the Jackson Group.

The alluvium deposited by the small streams that drain the uplands of Caldwell, Jackson, and Winn Parishes is mainly silty. This local stream alluvium is derived from material eroded from soils of the nearby uplands. Sandy alluvium is minor and is mainly in the narrow drain heads that are too small to map and along the channels of some of the small streams. No significant areas of clayey alluvium were observed except on the narrow flood plains of streams in the Ouachita River Valley escarpment that dissect materials of the Jackson Group. The clayey alluvium was evidently carried further downstream and deposited in and near Catahoula Lake.

Soils that formed in local stream alluvium include the Alligator, Guyton, Iuka, and Ouachita soils.

Elevation on the flood plains of local streams ranges from about 74 feet above sea level along Castor Creek at the LaSalle Parish line to about 180 feet above sea level near the upper limits of Bill Creek *(25)*.

Major streams that dissect the uplands of Caldwell Parish are Castor Creek, Flat Creek, Beaucoup Creek, Bill Creek, Black Creek, Boggy Branch, Hurricane Creek, Brushy Creek, Bayou de Chene, and Bayou Dan. Many other smaller creeks and drainageways contribute to the erosional and depositional processes in the parish.

Pleistocene age deposits recognized in Caldwell Parish include three waterborne deposits and one windblown deposit (loess). The waterborne deposits are on the terraces designated in the survey as T1, T2, and T3. Deposits of the T1 terrace are the youngest and lowest in elevation, and deposits of the T3 terrace are the oldest and highest in elevation.

The loess deposited in Caldwell Parish remains only on the stable landscape of the Jackson Group and on the alluvial plain. The difference in elevation between the T1 terrace and the alluvial plain decreases with distance upstream *(25)*. The alluvial plain is presumed to have a steeper gradient than the T1 terrace *(8)*. The T1 terrace closely parallels the major streams and decreases in width with distance upstream. The terrace eventually merges with the flood plain *(8)*. The point of convergence with the flood plain marks the upward limit of the braided stream conditions that existed during the period when the T1 terrace was forming.

The T1 sediment is characteristically low in clay, generally less than 18 percent, and is mostly very fine sand and silt. The landscape of the T1 terrace generally is nearly level; however, small mounds, referred to as pimple mounds, are in some areas. These mounds are neither large enough nor great enough in quantity to include on the soil maps.

In several places, relict stream channels are evident on the landscape of the T1 terrace. An example of a relict stream channel is in SW¼NE¼ sec. 10, T. 12 N., R. 2 E. These channels are larger than those on the present flood plain. The large size of the relict stream channels and the width of the T1 terrace suggest that an earlier stream larger than the present stream was in the valley.

The T1 terrace in Caldwell Parish seems to correlate well with the Deweyville Terraces described by some geomorphologists; however, Honer *(8)* designated it as Prairie Terraces.

less than 5 percent. The terrace commonly is dissected by small drainageways. In places, post-depositional erosion has entirely removed the T2 sediment from side slopes and exposed the underlying Tertiary age clays. On these eroded landscapes, the T2 sediment remains as thin caps 2 to 4 feet thick on ridgetops.

The surface elevation of the T2 terrace in Caldwell Parish is not so uniform as it commonly is for stream terraces *(25)*. Soils on some of the highest ridgetops in the parish (240 feet above sea level) are similar to soils at much lower elevations (140 feet above sea level). For example, the soils on a ridgetop in SE¼, sec. 21, T. 15 N., R. 2 E., have a profile that is very similar to that of soils in lower positions in SE¼, sec. 26, T. 13 N., R. 2 E. These soils have a similar degree of genetic development and are probably similar in their relative age.

Sediment of the T2 terrace is consistently yellowish brown and loamy wherever it occurs in the parish. The sediment is higher in content of clay, lower in content of silt, and has coarser sand than the sediment of the T1 terrace. Soils that formed in this sediment typically have a fragipan in the subsoil. The Savannah soils are on the T2 terrace in Caldwell Parish.

The content of plinthite and of small chert pebbles are the only soil features that did not appear to be uniform in the soils that formed in sediment of the T2 terrace.

The T3 terrace in Caldwell Parish has locally higher

Parish line. This sediment is topographically lower in elevation than that of the more stable area outside of the drainage basin. It is believed to represent materials deposited in the pre-Pleistocene age valley of Cypress Creek. This sediment is underlain by the Tertiary age sediment of the Cockfield Formation. The landscape

A reasonable concept of landscape evolution from the early Pleistocene age to the present begins with the T3 terrace sediment in place upon an uneven and eroded Tertiary surface, followed by the first of several periods of intense rainfall that correlate with the interglacial periods of the Pleistocene age

References

(1) Adams, F. 1984. Soil acidity and liming. Agron. Mono. 12, 2nd ed. Am. Soc. Agron.

(2) American Association of State Highway and Transportation Officials. 1982. Standard specifications for highway materials and methods of sampling and testing. Ed. 13, 2 vol., illus.

(3) American Society for Testing and Materials. 1986. Standard test method for classification of soils for engineering purposes. ASTM Stand. D 2487.

(4) Broadfoot, W.M., and R.M. Krinard. 1959. Guide for evaluating sweetgum sites. U.S. Dep. Agr., Forest Serv., South. Forest Exp. Stn. Occas. Pap. 176, 8 pp., illus.

(5) Broadfoot, W.M. 1960. Field guide for evaluating cottonwood sites. U.S. Dep. Agric., Forest Serv., South. Forest Exp. Stn. Occas. Pap. 178, 6 pp., illus.

(6) Broadfoot, W.M. 1963. Guide for evaluating water oak sites. U.S. Dep. Agric., Forest Serv., South. Forest Exp. Stn. Res. Pap. SO-1, 8 pp., illus.

(7) Fisk, Harold N. 1938. Geology of Grant and LaSalle Parishes. La. Geol. Surv., Geol. Bull. 10, 246 pp.

(8) Honer, F., Jr. 1939. Geology of Caldwell and Winn Parishes. Dep. Conserv., La. Geol. Surv., Bull. 15, illus.

(9) Jenny, Hans. 1941. Factors of soil formation. 281 pp., illus.

(10) Khasawneh, F.E., E.C. Sample, and E.J. Kamprath, eds. 1980. The role of phosphorus in agriculture. Am. Soc. Agron.

(11) Kilmer, Victor J., S.E. Younts, and N.C. Brady, eds. 1968. The role of potassium in agriculture. Am. Soc. Agron.

(12) Louisiana Geological Survey. 1984. Geologic map of Louisiana. Dep. Nat. Resour., La.

(13) Matson, G.C. 1916. The Pliocene Citronelle Formation of the Gulf Coast Plain. U.S. Geol. Surv. Prof. Pap. 98, illus.

(14) Rollo, J.R. 1960. Ground water in Louisiana. La. Dep. Conserv., Water Resour. Bull. 1, 84 pp., illus.

(15) Saucier, R.T. 1974. Quaternary geology of the Lower Mississippi Valley. Arkansas Geol. Sur., Res. Ser. 6, Arkansas Arch. Sur., Univ. Arkansas, Fayetteville, Ark., 26 pp., illus.

(16) Simonson, Roy W. 1959. Outline of a generalized theory of soil genesis. Soil Sci. Soc. Am. Proc. 23: 152-156, illus.

(17) Stevenson, F.J. 1982. Humus chemistry.

(18) Stevenson, F.J. 1982. Nitrogen in agricultural soils. Agron. Mono. 22. Am. Soc. Agron.

(19) United States Department of Agriculture. 1951 (Being revised). Soil survey manual. U.S. Dep. Agric. Handb. 18, 503 pp., illus. (Supplements replacing pp. 173-188 issued May 1962.)

(20) United States Department of Agriculture. 1975. Forest statistics for Louisiana parishes. Forest Serv., South. Forest Exp. Stn. Resour. Bull., pp. 50-52.

(21) United States Department of Agriculture. 1975.

(24) United States Department of Agriculture. 1986. Soil survey of Catahoula Parish, Louisiana. Soil Conserv. Serv. 189 pp., illus.

(25) United States Department of the Interior. 9 topographic maps: Chatum 1953, Columbia 1957.

Glossary

of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

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

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

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

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

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

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

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils commonly level or depressed and are

bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers

Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or

material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water to move through the profile. Permeability is measured as the number of inches per hour that water moves through the saturated soil. Terms describing permeability are:

through all its horizons and into the parent

Shrink-swell. The shrinking of soil when dry and the

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally it is indicative of an old weathered surface. In a cross section, thickness of the line can be one fragment or more. It generally overlies material that weathered in place and it is overlain

Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam,*

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Data recorded in the period 1951-75 at Chatham, Louisiana]

Month	Temperature						Precipitation				
	Average	Average	Average	2 years in 10 will have-- Maximum	2 years in 10 will have-- Minimum	Average number of	Average	2 years in 10 will have--		Average number of	Average

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Data recorded in the period 1951-75 at Chatham, Louisiana]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Mar. 15	Mar. 31	Apr. 10
2 years in 10 later than--	Mar. 8	Mar. 25	Apr. 5

TABLE 4.--SUITABILITY AND LIMITATIONS OF MAP UNITS ON THE GENERAL SOIL MAP FOR MAJOR LAND USES

Map unit	Percent of area	Cultivated crops	Pastureland	Woodland	Urban uses
Perry-Alligator	16	Poorly suited: flooding, wetness, poor tilth.	Somewhat poorly suited: flooding, wetness.	Moderately well suited: flooding, wetness.	Poorly suited: flooding, wetness, shrink-swell, very slow permeability, low strength for roads.
Perry-Hebert	11	Moderately well suited: wetness, poor tilth, flooding.	Moderately well suited: wetness, flooding.	Well suited.	Poorly suited: flooding, wetness, shrink-swell, moderately slow and very slow permeability, low strength for roads.
Hebert-Rilla	7	Well suited.	Well suited.	Well suited.	Moderately well suited: flooding, wetness, moderately slow permeability.
Guyton-Ouachita	8	Not suited: flooding, wetness.	Poorly suited: flooding, wetness.	Somewhat poorly suited: flooding, wetness.	Not suited: flooding, wetness.
Olla-Cadeville	5	Not suited: slope.	Poorly suited: slope.	Moderately well suited: slope.	Poorly suited: slope, moderate and very slow permeability, shrink-swell, low strength for roads.
Sacul-Savannah	34				
Sacul:		Not suited: slope.	Somewhat poorly suited: slope, low fertility.	Well suited.	Poorly suited: slope, wetness, shrink-swell, slow permeability, low strength for roads.
Savannah:		Moderately well suited: slope, low fertility, potential aluminum toxicity in root zone.	Well suited.	Well suited.	Poorly suited: slope, wetness, shrink-swell, moderately slow permeability, low strength for roads.
Falkner-Guyton	7	Moderately well suited: wetness, low fertility, potential aluminum toxicity in root zone, flooding in some areas.	Moderately well suited: low fertility, wetness, flooding in some areas.	Well suited.	Poorly suited: wetness, flooding, shrink-swell, moderately slow and slow permeability.

TABLE 4.--SUITABILITY AND LIMITATIONS OF MAP UNITS ON THE GENERAL SOIL MAP FOR MAJOR LAND USES--Continued

Map unit	Percent of area	Cultivated crops	Pastureland	Woodland	Urban uses
Frizzell-Providence	8	Moderately well suited: low fertility, potential aluminum toxicity in root zone, wetness, slope.	Moderately well suited: low fertility, slope.	Well suited	Somewhat poorly suited: wetness, shrink-swell, moderately slow and slow permeability.
Bayoudan	4	Not suited: slope.	Poorly suited: slope, potential landslides.	Moderately well suited: slope, potential landslides.	Poorly suited: slope, shrink-swell, very slow permeability, potential landslides, low strength for roads.

TABLE 5.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Ar	Alligator clay, frequently flooded	10,706	3.1
At	Arents, loamy and clayey	1,311	0.4
Bb	Bayoudan clay, 3 to 8 percent slopes	2,414	0.7
Bc	Bayoudan clay, 8 to 40 percent slopes	10,155	2.9
BR	Brimstone-Prentiss association, 0 to 3 percent slopes	2,499	0.7
Ch	Cahaba fine sandy loam, 1 to 3 percent slopes	583	0.2
Fa	Falkner silt loam	15,966	4.6
Fe	Forestdale silty clay loam, occasionally flooded	555	0.2
FZ	Frizzell-Guyton-Providence association, 0 to 2 percent slopes	29,403	8.4
Go	Gallion silt loam	1,789	0.5
Gr	Gore silt loam, 2 to 5 percent slopes	85	*
GY	Guyton and Ouachita silt loams, frequently flooded	36,756	10.5
He	Hebert silt loam	14,533	4.1
Hh	Hebert silt loam, gently undulating, occasionally flooded	5,272	1.5
Hn	Hebert silty clay loam	2,417	0.7
Hs	Hebert-Sterlington silt loams, 0 to 2 percent slopes	1,565	0.4
IB	Iuka fine sandy loam, frequently flooded	1,339	0.4
LA	Larue-Smithdale association, moderately steep	1,593	0.5
OC	Olla-Cadeville association, steep	18,382	5.2
Pe	Perry silty clay loam	8,030	2.3
Pf	Perry clay	2,078	0.6
Pg	Perry clay, occasionally flooded	44,106	12.4
Pk	Perry-Hebert complex, gently undulating	7,505	2.1
Pm	Portland silty clay loam	2,037	0.6
Pn	Portland clay	1,217	0.3
Po	Providence silt loam, 1 to 5 percent slopes	3,355	1.0
Rg	Rilla silt loam	6,838	2.0
Rk	Rilla-Hebert silt loams, gently undulating	2,137	0.6
Ru	Ruston fine sandy loam, 3 to 8 percent slopes	2,502	0.7
SC	Sacul fine sandy loam, moderately sloping	51,626	14.7
SH	Savannah-Sacul association, gently sloping	49,171	14.0
St	Sterlington silt loam	3,005	0.9
Tp	Tippah silt loam, 1 to 5 percent slopes	580	0.2
YO	Yorktown clay, frequently flooded	1,765	0.5
	Water areas less than 40 acres in size	741	0.2
	Water areas more than 40 acres in size	6,574	1.9
	Total	350,590	100.0

* Less than 0.1 percent.

TABLE 6.--PRIME FARMLAND

[Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime

TABLE 7.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Land capability	Cotton	Rice	Soybeans	Grain sorghum	Corn	Bahiagrass	Improved bermudagrass
		Lbs	Bu	Bu	Bu	Bu	AUM*	AUM*
Ar-------------- Alligator	Vw	---	---	15	35	---	---	---
At. Arents								
Bb-------------- Bayoudan	IVe	---	---	---	---	---	6.0	12.0
Bc-------------- Bayoudan	VIIe	---	---	---	---	---	5.0	---
BR:								
Brimstone------	IIIs	---	---	24	40	45	6.5	---
Prentiss-------	IIe	750	---	30	50	80	8.0	14.5
Ch-------------- Cahaba	IIe	800	---	35	80	100	8.5	15.0
Fa-------------- Falkner	IIw	625	---	35	70	75	8.0	13.5
Fe-------------- Forestdale	IVw	---	---	30	55	---	---	---
FZ:								
Frizzell-------	IIw	425	---	28	50	50	7.0	13.0
Guyton---------	IIIw	---	---	23	50	40	6.0	10.0
Providence-----	IIw	800	---	40	90	90	9.0	14.0
Go-------------- Gallion	I	975	---	40	90	90	9.5	15.0
Gr-------------- Gore	IVe	---	---	23	45	---	7.0	12.0
[illegible]	[illegible]	---	---	---	---	---	7.0	[illegible]

TABLE 7.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability	Cotton	Rice	Soybeans	Grain sorghum	Corn	Bahiagrass	Improved bermudagrass
		Lbs	Bu	Bu	Bu	Bu	AUM*	AUM*
IB--------------- Iuka	Vw	---	---	---	---	---	7.5	---
LA:								
Larue------------	VIe	---	---	---	---	---	5.0	11.0
Smithdale--------	VIe	---	---	---	---	---	6.0	9.0
OC--------------- Olla-Cadeville	VIIe	---	---	---	---	---	---	---
Pe, Pf----------- Perry	IIIw	---	110	30	75	50	---	13.0
Pg--------------- Perry	IVw	---	110	25	55	---	---	---

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
Ar: Alligator	7W	Slight	Severe	Severe	Moderate	Eastern cottonwood	90	7	Eastern cottonwood, green ash, American sycamore.
						Green ash	70	3	
						Nuttall oak	---	---	
						Overcup oak	---	---	
						Water locust	---	---	
						Water hickory	---	---	
Bb, Bc: Bayoudan	8C	Moderate	Moderate	Slight	Moderate	Shortleaf pine	70	8	Loblolly pine.
						Loblolly pine	80	8	
						Southern red oak	---	---	
						Sweetgum	---	---	
BR: Brimstone	11T	Slight	Severe	Moderate	Moderate	Slash pine	85	11	Loblolly pine.
						Loblolly pine	80	8	
Prentiss	9W	Slight	Slight	Slight	Moderate	Loblolly pine	88	9	Loblolly pine.
						Shortleaf pine	79	9	
						Sweetgum	90	7	
						Cherrybark oak	90	8	
						White oak	80	4	
Ch: Cahaba	9A	Slight	Slight	Slight	Slight	Loblolly pine	87	9	Loblolly pine, sweetgum, water oak.
						Slash pine	91	12	
						Shortleaf pine	70	8	
						Yellow poplar	---	---	
						Sweetgum	90	7	
						Southern red oak	---	---	
						Water oak	---	---	
Fa: Falkner	8W	Slight	Moderate	Slight	Slight	Loblolly pine	85	8	Loblolly pine, shortleaf pine.
						Shortleaf pine	75	8	
						Sweetgum	90	7	
Fe: Forestdale	9W	Slight	Moderate	Moderate	Moderate	Eastern cottonwood	100	9	Eastern cottonwood, green ash, sweetgum, American sycamore.
						Green ash	78	3	
						Cherrybark oak	94	9	
						Nuttall oak	99	---	
						Water oak	90	6	
						Willow oak	94	6	
						Sweetgum	100	10	
FZ: Frizzell	9W	Slight	Moderate	Slight	Slight	Loblolly pine	90	9	Loblolly pine.
						Sweetgum	90	7	
						Water oak	---	---	
Guyton	9W	Slight	Severe	Moderate	Moderate	Loblolly pine	90	9	Loblolly pine, sweetgum.
						Slash pine	90	11	
						Sweetgum	---	---	
						Green ash	---	---	
						Southern red oak	---	---	
						Water oak	---	---	
Providence	9W	Slight	Slight	Slight	Moderate	Loblolly pine	87	9	Loblolly pine, sweetgum, yellow poplar.
						Longleaf pine	73	6	
						Sweetgum	90	7	

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
Go-----Gallion	9A	Slight	Slight	Slight	Slight	Cherrybark oak------	95	9	Eastern cottonwood, American sycamore.
						Green ash-----------	80	3	
						Sweetgum------------	83	6	
						Water oak-----------	---	---	
						Pecan---------------	---	---	
						American sycamore---	---	---	
						Eastern cottonwood--	100	9	
Gr-----Gore	7C	Slight	Moderate	Moderate	Slight	Loblolly pine-------	76	7	Loblolly pine.
						Shortleaf pine------	---	---	
GY: Guyton---------	9W	Slight	Severe	Severe	Moderate	Loblolly pine-------	90	9	Loblolly pine, sweetgum.
						Slash pine----------	90	11	
						Sweetgum------------	---	---	
						Green ash-----------	---	---	
						Southern red oak----	---	---	
						Water oak-----------	---	---	
Ouachita--------	11W	Slight	Moderate	Slight	Slight	Loblolly pine-------	100	9	Loblolly pine, sweetgum, yellow poplar, American sycamore, eastern cottonwood.
						Sweetgum------------	100	10	
						Eastern cottonwood--	100	9	
He-----Hebert	8A	Slight	Slight	Slight	Slight	Eastern cottonwood--	95	8	Eastern cottonwood, American sycamore.
						Cherrybark oak------	95	9	
						Nuttall oak---------	90	---	
						Sweetgum------------	90	7	
						Pecan---------------	---	---	
						Water oak-----------	90	6	
						American sycamore---	---	---	
						Green ash-----------	---	---	
Hh-----Hebert	8W	Slight	Moderate	Slight	Slight	Eastern cottonwood--	95	8	Eastern cottonwood, American sycamore.
						Cherrybark oak------	95	9	
						Nuttall oak---------	90	---	
						Sweetgum------------	90	7	
						Pecan---------------	---	---	
						Water oak-----------	90	6	
						American sycamore---	---	---	

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
Hs:									
Hebert	8A	Slight	Slight	Slight	Slight	Eastern cottonwood	95	8	Eastern cottonwood, American sycamore.
						Cherrybark oak	95	9	
						Nuttall oak	90	---	
						Sweetgum	90	7	
						Pecan	---	---	
						Water oak	90	6	
						American sycamore	---	---	
						Green ash	---	---	
Sterlington	3A	Slight	Slight	Slight	Slight	Green ash	75	3	Eastern cottonwood, sweetgum.
						Eastern cottonwood	---	---	
						Cherrybark oak	95	4	
						Water oak	90	---	
						Pecan	---	---	
						Sweetgum	90	7	
						Swamp chestnut	---	---	
IB: Iuka	11W	Slight	Moderate	Moderate	Slight	Loblolly pine	100	9	Loblolly pine, eastern cottonwood, yellow poplar.
						Sweetgum	100	10	
						Eastern cottonwood	105	9	
						Water oak	100	7	
						Swamp chestnut	---	---	
LA:									
Larue	8S	Slight	Moderate	Moderate	Slight	Loblolly pine	80	8	Loblolly pine, shortleaf pine.
						Shortleaf pine	70	8	
						Longleaf pine	70	6	
						Southern red oak	---	---	
						Sweetgum	---	---	
Smithdale	9R	Moderate	Moderate	Slight	Slight	Loblolly pine	86	9	Loblolly pine, longleaf pine.
						Longleaf pine	69	5	
OC:									
Olla	8R	Severe	Severe	Moderate	---------	Loblolly pine	80	8	Loblolly pine.
						Southern red oak	---	---	
						White oak	---	---	
						American elm	---	---	
						Post oak	---	---	
						Shortleaf pine	---	---	
						Sweetgum	---	---	
						Hickory	---	---	
						Beech	---	---	
Cadeville	8C	Severe	Moderate	Moderate	Slight	Loblolly pine	80	8	Loblolly pine.
						Shortleaf pine	70	8	
Pe, Pf, Pg: Perry	3W	Slight	Severe	Moderate	Moderate	Green ash	72	3	Green ash, sweetgum, water oak.
						Sweetgum	92	8	
						Water oak	---	---	
						Pecan	---	---	
						Water hickory	---	---	
						American sycamore	---	---	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
Pk:									
Perry----------	3W	Slight	Severe	Moderate	Moderate	Green ash-----------	72	3	Green ash,
						Sweetgum------------	92	8	sweetgum,
						Water oak-----------	---	---	water oak.
						Pecan---------------	---	---	
						Water hickory-------	---	---	
Hebert---------	8A	Slight	Slight	Slight	Slight	Eastern cottonwood--	95	8	Eastern
						Cherrybark oak------	95	9	cottonwood,
						Nuttall oak---------	90	---	American
						Sweetgum------------	90	7	sycamore.
						Pecan---------------	---	---	
						Water oak-----------	90	6	
						American sycamore---	---	---	
						Green ash-----------	---	---	
Pm, Pn---------- Portland	3W	Slight	Severe	Moderate	Moderate	Green ash-----------	80	3	Green ash,
						Sweetgum------------	90	7	sweetgum,
						Water oak-----------	---	---	water oak.
						American sycamore---	---	---	
Po-------------- Providence	8W	Slight	Slight	Slight	Moderate	Loblolly pine-------	84	8	Loblolly pine,
						Shortleaf pine------	64	7	sweetgum,
						Sweetgum------------	90	7	yellow poplar.
Rg-------------- Rilla	9A	Slight	Slight	Slight	Slight	Eastern cottonwood--	100	9	Eastern
						Cherrybark oak------	100	10	cottonwood,
						Nuttall oak---------	85	---	American
						Sweetgum------------	100	10	sycamore.
						Pecan---------------	---	---	
						American sycamore---	---	---	
Rk:									
Rilla----------	9A	Slight	Slight	Slight	Slight	Eastern cottonwood--	100	9	Eastern
						Cherrybark oak------	100	10	cottonwood,
						Nuttall oak---------	85	---	American
						Sweetgum------------	100	10	sycamore.
						Pecan---------------	---	---	
						American sycamore---	---	---	
Hebert---------	8A	Slight	Slight	Slight	Slight	Eastern cottonwood--	95	8	Eastern
						Cherrybark oak------	95	9	cottonwood,
						Nuttall oak---------	90	---	American
						Sweetgum------------	90	7	sycamore.
						Pecan---------------	---	---	
						Water oak-----------	90	6	

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	Productivity class*	
SC: Sacul	8C	Slight	Slight	Slight	Slight	Loblolly pine	80	8	Loblolly pine, shortleaf pine.
						Shortleaf pine	70	8	
SH: Savannah	9W	Slight	Moderate	Slight	Moderate	Loblolly pine	88	9	Loblolly pine, sweetgum, American sycamore, yellow poplar.
						Longleaf pine	78	7	
						Slash pine	88	11	
						Sweetgum	85	6	
Sacul	8C	Slight	Slight	Slight	Slight	Loblolly pine	80	8	Loblolly pine, shortleaf pine.
						Shortleaf pine	70	8	
						Southern red oak	---	---	
						Sweetgum	---	---	
St: Sterlington	3A	Slight	Slight	Slight	Slight	Green ash	75	3	Eastern cottonwood.
						Eastern cottonwood	---	---	
						Cherrybark oak	95	9	
						Water oak	90	6	
						Pecan	---	---	
						Sweetgum	90	7	
Tr	8A	Slight	Slight	Slight	Slight	Loblolly pine	78	8	Loblolly pine.

TABLE 9.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Ar: Alligator	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.	Severe: wetness, flooding, too clayey.
At. Arents					
Bb: Bayoudan	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey.	Severe: too clayey.
Bc: Bayoudan	Severe: slope, percs slowly, too clayey.	Severe: slope, too clayey, percs slowly.	Severe: slope, too clayey, percs slowly.	Severe: too clayey.	Severe: slope, too clayey.
BR: Brimstone	Severe:	Severe:	Severe:	Severe:	Severe:

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Gr: Gore	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Slight	Slight.
GY:					
Guyton	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Ouachita	Severe: flooding.	Moderate: flooding, percs slowly.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
He: Hebert	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Hh: Hebert	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
Hn: Hebert	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Hs:					
Hebert	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Sterlington	Slight	Slight	Slight	Slight	Slight.
IB: Iuka	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
LA:					
Larue	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty, slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
OC:					
Olla	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
Cadeville	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Moderate: slope.	Severe: slope.
Pe: Perry	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Pf: Perry	Severe: wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, too clayey.	Severe: wetness, too clayey.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Tp-------------------- Tippah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight----------	Slight.
YO--------------------	Severe:	Severe:	Severe:	Severe:	Severe:

TABLE 10.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Ar: Alligator	Poor	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
At. Arents											
Bb, Bc: Bayoudan	Poor	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
BR:											
Brimstone	Fair	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Prentiss	Fair	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Ch: Cahaba	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Fa: Falkner	Good	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Fe: Forestdale	Fair	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
FZ:											
Frizzell	Fair	Good	Good	Fair	Good	Good	Fair	Fair	Good	Good	Fair.
Guyton	Fair	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Providence	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Go: Gallion	Good	Good	Good	Good	Fair	Good	Poor	Very poor.	Good	Good	Very poor.
Gr: Gore	Poor	Good	Good	Fair	Fair	Good	Very poor.	Very poor.	Fair	Fair	Very poor.
GY:											
Guyton	Poor	Fair	Fair	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
Ouachita	Poor	Fair	Fair	Good	Poor	Good	Good	Fair	Fair	Good	Fair.
He: Hebert	Good	Good	Good	Good	Fair	Good	Fair	Fair	Good	Good	Fair.
Hh: Hebert	Fair	Fair	Good	Good	Fair	Good	Fair	Fair	Fair	Good	Fair.
Hn: Hebert	Good	Good	Good	Good	Fair	Good	Fair	Fair	Good	Good	Fair.
Hs:											
Hebert	Good	Good	Good	Good	Fair	Good	Fair	Fair	Good	Good	Fair.
Sterlington	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	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
IB----------------- Iuka	Poor	Fair	Fair	Good	Good	Fair	Poor	Poor	Fair	Good	Poor.
LA:											
Larue--------------	Poor	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale----------	Poor	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
OC:											
Olla---------------	Poor	Poor	Good	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Cadeville----------	Poor	Poor	Good	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Pe, Pf------------- Perry	Fair	Fair	Fair	Good	Poor	Good	Good	Good	Fair	Good	Good.
Pg----------------- Perry	Poor	Fair	Fair	Fair	Poor	Good	Fair	Fair	Fair	Fair	Fair.
Pk:											
Perry--------------	Fair	Fair	Fair	Good	Poor	Good	Good	Good	Fair	Good	Good.
Hebert-------------	Good	Good	Good	Good	Fair	Good	Fair	Fair	Good	Good	Fair.
Pm, Pn------------- Portland	Good	Good	Good	Good	Fair	Good	Good	Good	Good	Good	Good.
Po----------------- Providence	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Rg----------------- Rilla	Good	Good	Good	Good	Fair	Good	Poor	Very poor.	Good	Good	Very poor.
Rk:											
Rilla--------------	Good	Good	Good	Good	Fair	Good	Poor	Very poor.	Good	Good	Very poor.
Hebert-------------	Good	Good	Good	Good	Fair	Good	Fair	Fair	Good	Good	Fair.
Ru----------------- Ruston	Fair	Good	Good	Fair	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SC----------------- Sacul	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SH:											
Savannah-----------	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Sacul--------------	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
St----------------- Sterlington	Good	Good	Good	Good	Fair	Good	Poor	Very poor.	Good	Good	Very poor.

TABLE 11.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Ar---------------- Alligator	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness, flooding, too clayey.
At. Arents					
Bb---------------- Bayoudan	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: slippage, low strength, shrink-swell.	Severe: too clayey.
Bc---------------- Bayoudan	Severe: slope, cutbanks cave.	Severe: shrink-swell, slope, slippage.	Severe: shrink-swell, slope, slippage.	Severe: low strength, slope, slippage.	Severe: slope, too clayey.
BR:					
Brimstone--------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, low strength.	Severe: wetness.
Prentiss---------	Severe:	Moderate:	Moderate:	Moderate:	Moderate:

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
GY:					
Guyton	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
Ouachita	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
He	Severe:	Moderate:	Moderate:	Severe:	Moderate:

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Pg: Perry	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, flooding.	Severe: wetness, too clayey.
Pk:					
Perry	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness.	Severe: wetness, too clayey.
Hebert	Severe: wetness.	Severe: flooding.	Severe: flooding.	Severe: low strength.	Moderate: wetness.
Pm: Portland	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness.	Severe: wetness.
Pn: Portland	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness.	Severe: wetness, too clayey.
Po: Providence	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: low strength.	Moderate: wetness.
Rg: Rilla	Moderate: too clayey, wetness.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
Rk:					
Rilla	Moderate: too clayey, wetness.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
Hebert	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Moderate: wetness.
Ru: Ruston	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
SC: Sacul	Moderate: too clayey, wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
SH:					
Savannah	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Moderate: wetness, droughty.
Sacul	Moderate: too clayey, wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
St: Sterlington	Slight	Slight	Slight	Slight	Slight.
Ta	Severe:	Moderate:	Moderate:	Severe:	Slight

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
YO----------------- Yorktown	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding, too clayey.

TABLE 12.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ar: Alligator	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
At. Arents					
Bb: Bayoudan	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
Bc: Bayoudan	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey, slippage.	Severe: slope.	Poor: too clayey, hard to pack, slope.
BR:					
Brimstone	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Prentiss	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
Ch: Cahaba	Slight	Severe: seepage.	Severe: seepage.	Slight	Fair: thin layer.
Fa: Falkner	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
Fe: Forestdale	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
FZ:					
Frizzell	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
Guyton	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Providence	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
Go: Gallion	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
Gr: Gore	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
GY:					
Guyton	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Ouachita	Severe: flooding, percs slowly.	Severe: flooding.	Severe: flooding, seepage.	Severe: flooding.	Fair: too clayey.
He Hebert	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Hh Hebert	Severe: wetness, percs slowly, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.	Fair: too clayey, wetness.
Hn Hebert	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Hs:					
Hebert	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Sterlington	Moderate: percs slowly.	Moderate: seepage.	Slight	Slight	Good.
IB Iuka	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
LA:					
Larue	Severe: poor filter.	Severe: seepage, slope.	Moderate: slope.	Severe: seepage.	Fair: slope.
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
OC:					
Olla	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: hard to pack, slope.
Cadeville	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Pe, Pf Perry	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Pg Perry	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.

TABLE 13.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Ar: Alligator	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
At. Arents				
Bb: Bayoudan	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Bc: Bayoudan	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
BR:				
Brimstone	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Prentiss	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Ch: Cahaba	Good	Probable	Improbable: too sandy.	Fair: too clayey.
Fa: Falkner	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Fe: Forestdale	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
FZ:				
Frizzell	Fair: thin layer, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Guyton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Providence	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Go: Gallion	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Gr: Gore	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
GY:				
Guyton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Ouachita	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
He, Hh: Hebert	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Hn: Hebert	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Hs:				
Hebert	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Sterlington	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
IB: Iuka	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
LA:				
Larue	Good	Improbable:	Improbable:	Fair:

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Rg: Rilla	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
Rk:				
Rilla	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
Hebert	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Ru: Ruston	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
SC: Sacul	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
SH:				
Savannah	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
Sacul	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
St: Sterlington	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Tp: Tippah	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.
YO: Yorktown	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

TABLE 14.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir	Embankments, dikes, and	Aquifer-fed excavated	Drainage	Irrigation	Terraces and

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions
GY: Guyton-----------	Moderate: seepage.	Severe: piping.	Severe: no water.	Percs slowly, flooding.	Wetness, percs slowly,	Erodes easily, wetness,

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions
Pk:						
Perry	Slight	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly	Wetness, slow intake, percs slowly.	Wetness, percs slowly.
Hebert	Moderate: seepage.	Severe: thin layer, wetness.	Severe: slow refill.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.
Pm: Portland	Slight	Severe: hard to pack, wetness.	Severe: no water.	Percs slowly	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.
Pn: Portland	Slight	Severe: hard to pack, wetness.	Severe: no water.	Percs slowly	Wetness, slow intake, percs slowly.	Wetness, percs slowly.
Po: Providence	Moderate: seepage, slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Slope	Slope, wetness, rooting depth.	Erodes easily, wetness, rooting depth.
Rg: Rilla	Moderate: seepage.	Severe: thin layer.	Moderate: deep to water, slow refill.	Deep to water	Erodes easily	Erodes easily.
Rk:						
Rilla	Moderate: seepage.	Severe: thin layer.	Moderate: deep to water, slow refill.	Deep to water	Erodes easily	Erodes easily.
Hebert	Moderate: seepage.	Severe: thin layer, wetness.	Severe: slow refill.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.
Ru: Ruston	Moderate: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope	Favorable.
SC: Sacul	Slight	Severe: hard to pack.	Moderate: deep to water.	Deep to water	Slope, percs slowly, wetness.	Percs slowly, wetness.
SH:						
Savannah	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Slope	Slope, wetness, droughty, rooting depth.	Wetness, rooting depth.
Sacul	Slight	Severe: hard to pack.	Moderate: deep to water.	Deep to water	Slope, percs slowly, wetness.	Percs slowly, wetness.
St: Sterlington	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
Tp: Tippah	Moderate: seepage, slope.	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness.
YO: Yorktown	Slight	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.

TABLE 15.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated. Some soils may have Unified classifications and USDA textures in addition to those shown. In general, the dominant classifications and textures are shown]

Map symbol and soil name	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	
Ar Alligator	0-4	Clay	CH	A-7	0	100	100	95-100	95-100	52-75	30-50
	4-40	Silty clay, clay	CH	A-7	0	100	100	100	95-100	62-94	33-64
	40-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	95-100	62-94	33-64
At. Arents											
Bb Bayoudan	0-2	Clay	CL, CH	A-7	0	100	100	95-100	85-100	40-90	25-55
	2-48	Clay	CH	A-7-6	0	100	100	95-100	90-100	75-90	48-60
	48-72	Clay	CH	A-7-6	0	100	100	95-100	90-100	75-90	48-60
Bc Bayoudan	0-5	Clay	CL, CH	A-7	0	100	100	95-100	85-100	40-90	25-55
	5-25	Clay	CH	A-7-6	0	100	100	95-100	90-100	75-90	48-60
	25-72	Clay	CH	A-7-6	0	100	100	95-100	90-100	75-90	48-60
BR: Brimstone	0-21	Very fine sandy loam.	CL-ML, CL	A-4, A-6	0	100	100	90-100	70-90	15-38	6-17
	21-45	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	100	100	95-100	80-95	26-48	11-33
	45-85	Silty clay loam, silt loam, fine sandy loam.	CL	A-6, A-7-6	0	100	100	95-100	80-95	26-48	11-33
Prentiss	0-5	Fine sandy loam.	SC, SM-SC, SM	A-4	0	100	100	65-85	36-50	<30	NP-10

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	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	
FZ:											
Frizzell	0-4	Silt loam	CL-ML, ML, CL	A-4	0	100	100	90-100	65-90	<30	NP-10
	4-35	Silt loam, loam.	CL	A-6	0	100	100	90-100	70-95	31-40	11-19
	35-72	Silt loam, silty clay loam, clay loam, loam.	CL	A-6, A-4	0	100	100	90-100	65-95	28-40	8-19
Guyton	0-4	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	65-90	<27	NP-7
	4-28	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-6, A-4	0	100	100	94-100	75-95	22-40	6-18
	28-60	Silt loam, silty clay loam.	CL, CL-ML, ML	A-6, A-4	0	100	100	95-100	50-95	<40	NP-18
Providence	0-5	Silt loam	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
	5-34	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	34-54	Silt loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	54-60	Loam, clay loam, sandy clay loam, silt loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
Go: Gallion	0-9	Silt loam	ML, CL-ML, CL	A-4, A-6	0	100	100	100	90-100	<28	NP-11
	9-46	Silt loam, silty clay loam, very fine sandy loam.	CL	A-6	0	100	100	100	90-100	28-40	11-17
	46-64	Stratified silty clay loam to very fine sandy loam.	CL, CL-ML	A-6, A-4	0	100	100	100	90-100	23-34	4-12
Gr: Gore	0-6	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	60-90	<27	NP-7
	6-71	Clay, silty clay	CH	A-7-6	0	100	100	95-100	85-100	53-65	28-40
GY:											
Guyton	0-24	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	65-90	<27	NP-7
	24-46	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-6, A-4	0	100	100	94-100	75-95	22-40	6-18
	46-62	Silt loam, silty clay loam.	CL, CL-ML,	A-6, A-4	0	100	100	95-100	50-95	<40	NP-18
Ouachita	0-7	Silt loam	ML, CL-ML, CL	A-4, A-6	0	100	100	85-100	75-95	<30	NP-12
	7-65	Silt loam, loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	85-100	80-100	25-40	5-20
	65-72	Fine sandy loam, loamy fine sand, silty clay loam.	SM, ML, CL-ML, SM-SC	A-4, A-2	0	100	100	50-95	20-75	<30	NP-5
He: Hebert	0-13	Silt loam	ML, CL-ML	A-4	0	100	100	100	75-100	<27	NP-7
	13-54	Clay loam, silt loam, silty clay loam.	CL	A-6, A-7-6	0	100	100	100	85-100	31-45	11-22
	54-72	Stratified very fine sandy loam to silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	90-100	60-100	22-40	3-18

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Hh-----------------Hebert	0-5	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	65-100	<27	NP-7
	5-38	Loam, silt loam, silty clay loam.	CL	A-6, A-7-6	0	100	100	100	85-100	31-45	11-22
	38-60	Stratified very fine sandy loam to silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	90-100	60-100	22-40	3-18
Hn-----------------Hebert	0-5	Silty clay loam.	CL	A-6	0	100	100	100	80-100	31-40	11-18
	5-47	Loam, silt loam, silty clay loam.	CL	A-6, A-7-6	0	100	100	100	85-100	31-45	11-22
	47-71	Stratified very fine sandy loam to silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	90-100	60-100	22-40	3-18
Hs: Hebert-----------	0-8	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	75-100	<27	NP-7
	8-42	Loam, silt loam, silty clay loam.	CL	A-6, A-7-6	0	100	100	100	85-100	31-45	11-22
	42-60	Stratified very fine sandy loam to silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	90-100	60-100	22-40	3-18
Sterlington-----	0-15	Silt loam--------	ML	A-4	0	100	100	90-100	60-95	<23	NP-3
	15-54	Silt loam, very fine sandy loam, loam.	CL-ML, ML	A-4	0	100	100	90-100	80-95	<28	NP-7
	54-60	Very fine sandy loam, silt loam, loam.	ML, CL-ML	A-4	0	100	100	90-100	80-95	<28	NP-7
IB-----------------Iuka	0-10	Fine sandy loam.	SM, SM-SC, ML, CL-ML	A-4, A-2	0	95-100	90-100	70-100	30-60	<20	NP-7
	10-29	Fine sandy loam, loam, sandy loam.	SM, SM-SC, ML, CL-ML	A-4	0	95-100	85-100	65-100	36-75	<30	NP-7
	29-60	Sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	0	95-100	90-100	70-100	25-60	<30	NP-7
LA: Larue------------	0-29	Loamy fine sand.	SM	A-2-4	0	100	98-100	50-75	15-30	---	NP
	29-40	Sandy clay loam, clay loam, loam.	SC, SM-SC	A-2-4, A-4, A-6, A-2-6	0	100	95-100	80-90	30-45	20-35	5-12
	40-72	Sandy clay loam, loam, clay loam.	SM, SM-SC, SC	A-2-4, A-4	0	100	95-100	60-70	30-40	20-30	3-10
Smithdale--------	0-14	Fine sandy loam.	SM, SM-SC	A-4, A-2	0	100	85-100	60-95	28-49	<20	NP-5
	14-59	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-96	45-75	23-38	7-16
	59-95	Loam, sandy loam.	SM, ML, CL, SC	A-4	0	100	85-100	65-95	36-70	<30	NP-10

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
OC:											
Olla------------	0-6	Fine sandy loam.	SM, ML, SM-SC	A-4, A-2	0	95-100	85-100	60-85	40-60	<20	NP-5
	6-24	Sandy clay loam, clay loam, loam.	SC, CL, CH	A-6, A-7, A-2	0	95-100	85-100	75-90	45-75	22-53	7-35
	24-64	Fine sandy loam, sandy loam, loam.	SM, ML, CL, SC	A-4, A-7, A-6	0	95-100	85-100	60-90	36-70	<30	NP-10
	64-72	Variable---------	---	---	---	---	---	---	---	---	---
Cadeville-------	0-3	Very fine sandy loam.	SM, CL-ML, ML, SM-SC	A-4	0	100	100	70-85	40-55	<28	NP-7
	3-18	Silty clay, clay.	CH, CL	A-7-6	0	100	100	95-100	80-95	41-60	22-35
	18-60	Clay, silty clay, silty clay loam.	CH, CL	A-7-6, A-6	0	100	100	95-100	75-95	30-55	12-30
Pe--------------- Perry	0-6	Silty clay loam.	CL, CH	A-7-6	0	100	100	100	95-100	42-65	22-40
	6-28	Clay-------------	CH	A-7-6	0	100	100	100	95-100	60-80	33-50
	28-60	Clay-------------	CH, CL	A-7-6	0	90-100	85-100	75-100	70-100	45-80	22-50
Pf--------------- Perry	0-4	Clay-------------	CH, CL	A-7-6	0	100	100	100	95-100	45-75	22-45
	4-25	Clay-------------	CH	A-7-6	0	100	100	100	95-100	60-80	33-50
	25-64	Clay-------------	CH, CL	A-7-6	0	90-100	85-100	75-100	70-100	45-80	22-50
Pg--------------- Perry	0-5	Clay-------------	CH, CL	A-7-6	0	100	100	100	95-100	45-75	22-45
	5-19	Clay-------------	CH	A-7-6	0	100	100	100	95-100	60-80	33-50
	19-60	Clay-------------	CH, CL	A-7-6	0	90-100	85-100	75-100	70-100	45-80	22-50
Pk:											

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Po-----------------Providence	0-6	Silt loam---------	ML, CL, CL-ML	A-4	0	100	100	100	85-100	<30	NP-10
	6-24	Silty clay loam, silt loam.	CL	A-7, A-6	0	100	100	95-100	85-100	30-45	11-20
	24-54	Silt loam, silty clay loam, clay loam.	CL	A-6	0	100	100	90-100	70-90	25-40	11-20
	54-72	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	0	100	95-100	70-95	40-80	20-35	8-18
Rg-----------------Rilla	0-10	Silt loam---------	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<31	NP-10
	10-29	Silty clay loam, clay loam, silt loam.	CL	A-6, A-4	0	100	100	100	90-100	28-40	8-17
	29-68	Loam, silty clay loam, silt loam.	CL-ML, CL	A-4, A-6, A-7-6	0	100	100	100	75-100	23-45	4-21
Rk:											
Rilla-------------	0-12	Silt loam---------	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<31	NP-10
	12-45	Silty clay loam, clay loam, silt loam.	CL	A-6, A-4	0	100	100	100	90-100	28-40	8-17
	45-60	Loam, silty clay loam, clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	100	100	100	75-100	23-45	4-21
Hebert------------	0-14	Silt loam---------	ML, CL-ML	A-4	0	100	100	100	75-100	<27	NP-7
	14-45	Loam, silt loam, silty clay loam.	CL	A-6, A-7-6	0	100	100	100	85-100	31-45	11-22
	45-72	Stratified very fine sandy loam to silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	90-100	60-100	22-40	3-18
Ru-----------------Ruston	0-8	Fine sandy loam.	SM, ML	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<20	NP-3
	8-49	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-20
	49-68	Fine sandy loam, sandy loam, loamy sand.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<27	NP-7
	68-84	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-42	11-20
SC-----------------Sacul	0-6	Fine sandy loam.	SM, ML	A-4	0	95-100	90-100	80-100	40-65	<20	NP-3
	6-25	Clay, silty clay.	CH, CL	A-7	0	95-100	90-100	85-95	80-90	45-70	20-40

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
St----------------- Sterlington	0-10	Silt loam--------	ML	A-4	0	100	100	90-100	60-95	<23	NP-3
	10-53	Silt loam, very fine sandy loam, loam.	CL-ML, ML	A-4	0	100	100	90-100	80-95	<28	NP-7
	53-80	Very fine sandy loam, silt loam, loam.	ML, CL-ML	A-4	0	100	100	90-100	80-95	<28	NP-7
Tp----------------- Tippah	0-5	Silt loam--------	CL, CL-ML	A-4	0	100	100	90-100	70-90	20-30	4-10
	5-34	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	98-100	90-100	85-95	30-45	11-22
	34-60	Silty clay, clay.	CH	A-7	0	100	99-100	80-100	60-95	50-65	25-40
YO----------------- Yorktown	0-10	Clay-------------	MH, CH, OH	A-7	0	100	100	100	95-100	55-75	24-45
	10-59	Clay-------------	CH	A-7	0	100	100	100	95-100	60-80	32-50
	59-72	Clay-------------	CH	A-7	0	100	100	95-100	90-100	60-80	32-50

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than. Entries under "Erosion factors--T" apply to the entire profile. Entries under

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
GY:										
Guyton----------	0-24	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.43	5	.5-5
	24-46	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	Low----------	0.37		
	46-62	20-35	1.35-1.70	0.06-2.0	0.15-0.22	3.6-6.0	Low----------	0.37		
Ouachita--------	0-7	8-25	1.25-1.60	0.6-2.0	0.15-0.24	4.5-5.5	Low----------	0.43	5	.5-2
	7-65	8-25	1.25-1.60	0.2-0.6	0.15-0.24	4.5-5.5	Low----------	0.32		
	65-72	18-35	1.25-1.65	0.6-6.0	0.07-0.24	4.5-5.5	Low----------	0.24		
He--------------- Hebert	0-13	10-27	1.30-1.65	0.6-2.0	0.21-0.23	3.6-7.3	Low----------	0.43	5	.5-4
	13-54	14-35	1.30-1.70	0.2-0.6	0.18-0.22	4.5-6.5	Moderate-----	0.32		
	54-72	10-35	1.30-1.70	0.6-2.0	0.18-0.22	5.1-7.8	Low----------	0.37		
Hh--------------- Hebert	0-5	10-27	1.30-1.65	0.6-2.0	0.21-0.23	3.6-7.3	Low----------	0.43	5	.5-4
	5-38	14-35	1.30-1.65	0.2-0.6	0.18-0.22	4.5-6.5	Moderate-----	0.32		
	38-60	10-35	1.30-1.65	0.6-2.0	0.18-0.22	5.1-7.8	Low----------	0.37		
Hn--------------- Hebert	0-5	27-35	1.40-1.70	0.2-0.6	0.20-0.22	3.6-7.3	Moderate-----	0.37	5	.5-4
	5-47	14-35	1.30-1.70	0.2-0.6	0.18-0.22	4.5-6.5	Moderate-----	0.32		
	47-71	10-35	1.30-1.70	0.6-2.0	0.18-0.22	5.1-7.8	Low----------	0.37		
Hs:										
Hebert----------	0-8	10-27	1.30-1.65	0.6-2.0	0.21-0.23	3.6-7.3	Low----------	0.43	5	.5-4
	8-42	14-35	1.30-1.70	0.2-0.6	0.18-0.22	4.5-6.5	Moderate-----	0.32		
	42-60	10-35	1.30-1.70	0.6-2.0	0.18-0.22	5.1-7.8	Low----------	0.37		
Sterlington-----	0-15	10-18	1.30-1.65	0.6-2.0	0.18-0.22	4.5-6.0	Low----------	0.43	5	.5-4
	15-54	10-18	1.30-1.70	0.6-2.0	0.18-0.22	4.5-6.5	Low----------	0.37		
	54-60	10-22	1.30-1.70	0.6-2.0	0.18-0.22	5.1-8.4	Low----------	0.37		
IB--------------- Iuka	0-10	6-15	1.35-1.65	2.0-6.0	0.10-0.15	4.5-6.0	Low----------	0.24	5	.5-2
	10-29	8-18	1.35-1.65	0.6-2.0	0.10-0.20	4.5-6.0	Low----------	0.28		
	29-60	5-15	1.35-1.65	0.6-2.0	0.10-0.20	4.5-6.0	Low----------	0.20		
LA:										
Larue-----------	0-29	3-15	1.30-1.50	6.0-20	0.05-0.10	5.1-6.5	Low----------	0.17	5	.5-2
	29-40	20-30	1.40-1.60	0.6-2.0	0.10-0.15	5.1-6.5	Low----------	0.24		
	40-72	15-30	1.40-1.60	0.6-2.0	0.10-0.15	5.1-6.5	Low----------	0.24		
Smithdale-------	0-14	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	14-59	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	59-95	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
OC:										
Olla------------	0-6	10-20	1.30-1.65	0.6-2.0	0.08-0.13	3.6-6.0	Low----------	0.37	5	.5-2
	6-24	18-35	1.35-1.75	0.6-2.0	0.10-0.16	3.6-5.5	Moderate-----	0.32		
	24-64	10-27	1.30-1.70	0.6-2.0	0.06-0.16	3.6-5.5	Low----------	0.37		
	64-72	8-60	1.30-1.70	0.6-2.0	0.06-0.16	3.6-5.5	Low----------	0.37		
Cadeville-------	0-3	5-20	1.35-1.70	2.0-6.0	0.11-0.15	3.6-6.0	Low----------	0.43	5	.5-5
	3-18	39-60	1.20-1.45	<0.06	0.18-0.20	3.6-5.5	High---------	0.32		
	18-60	30-60	1.20-1.65	0.06-0.2	0.18-0.20	3.6-5.5	High---------	0.32		
Pe--------------- Perry	0-6	27-40	1.35-1.70	0.06-0.2	0.18-0.22	4.5-6.0	High---------	0.37	5	.5-4
	6-28	55-85	1.17-1.50	<0.06	0.17-0.20	5.1-7.3	Very high----	0.28		
	28-60	55-85	1.17-1.50	<0.06	0.17-0.20	6.1-8.4	Very high----	0.28		

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
Pg-----------------Perry	0-5	40-80	1.20-1.60	<0.06	0.17-0.20	4.5-6.0	High---------	0.32	5	.5-4
	5-19	55-85	1.17-1.50	<0.06	0.17-0.20	5.1-7.3	Very high----	0.28		
	19-60	55-85	1.17-1.50	<0.06	0.17-0.20	6.1-8.4	Very high----	0.28		
Pk:										
Perry-----------	0-5	40-80	1.20-1.60	<0.06	0.17-0.20	4.5-6.0	High---------	0.32	5	.5-4
	5-31	55-85	1.17-1.50	<0.06	0.17-0.20	5.1-7.3	Very high----	0.28		
	31-60	55-85	1.17-1.50	<0.06	0.17-0.20	6.1-8.4	Very high----	0.28		
Hebert-----------	0-6	10-27	1.30-1.65	0.6-2.0	0.21-0.23	3.6-7.3	Low----------	0.43	5	.5-4
	6-42	14-35	1.30-1.70	0.2-0.6	0.18-0.22	4.5-6.5	Moderate-----	0.32		
	42-64	10-35	1.30-1.70	0.6-2.0	0.18-0.22	5.1-7.8	Low----------	0.37		
Pm-----------------Portland	0-8	27-35	1.25-1.55	0.2-2.0	0.16-0.24	4.5-7.3	Low----------	0.43	5	1-4
	8-20	60-85	1.15-1.45	<0.06	0.12-0.18	4.5-7.3	High---------	0.32		
	20-35	60-85	1.15-1.45	<0.06	0.12-0.18	6.1-8.4	High---------	0.32		
	35-60	15-60	1.15-1.55	<0.06	0.12-0.22	6.1-8.4	High---------	0.32		
Pn-----------------Portland	0-5	40-60	1.15-1.50	<0.06	0.12-0.18	4.5-7.3	High---------	0.32	5	.5-4
	5-14	60-85	1.15-1.45	<0.06	0.12-0.18	4.5-7.3	High---------	0.32		
	14-52	60-85	1.15-1.45	<0.06	0.12-0.18	6.1-8.4	High---------	0.32		
	52-72	15-60	1.15-1.55	<0.06	0.12-0.22	6.1-8.4	High---------	0.32		
Po-----------------Providence	0-6	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49	3	.5-5
	6-24	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.43		
	24-54	20-30	1.40-1.75	0.2-0.6	0.08-0.10	4.5-6.0	Low----------	0.32		
	54-72	12-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low----------	0.32		
Rg-----------------Rilla	0-10	14-27	1.30-1.65	0.6-2.0	0.21-0.23	4.5-7.3	Low----------	0.43	5	.5-4
	10-29	18-35	1.30-1.65	0.6-2.0	0.20-0.22	3.6-5.5	Moderate-----	0.32		
	29-68	20-35	1.30-1.65	0.6-2.0	0.18-0.22	3.6-8.4	Low----------	0.32		
Rk:										
Rilla-----------	0-12	14-27	1.30-1.65	0.6-2.0	0.21-0.23	4.5-7.3	Low----------	0.43	5	.5-4
	12-45	18-35	1.30-1.65	0.6-2.0	0.20-0.22	3.6-5.5	Moderate-----	0.32		
	45-60	20-35	1.30-1.65	0.6-2.0	0.18-0.22	3.6-8.4	Low----------	0.32		
Hebert-----------	0-14	10-27	1.30-1.65	0.6-2.0	0.21-0.23	3.6-7.3	Low----------	0.43	5	.5-4
	14-45	14-35	1.30-1.70	0.2-0.6	0.18-0.22	4.5-6.5	Moderate-----	0.32		
	45-72	10-35	1.30-1.70	0.6-2.0	0.18-0.22	5.1-7.8	Low----------	0.37		
Ru-----------------Ruston	0-8	5-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-6.5	Low----------	0.28	5	.5-2
	8-49	18-35	1.30-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.28		
	49-68	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	Low----------	0.32		
	68-84	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.28		
SC-----------------Sacul	0-6	5-25	1.30-1.50	0.6-2.0	0.10-0.20	3.6-5.5	Low----------	0.32	5	.5-5
	6-25	35-60	1.20-1.35	0.06-0.2	0.12-0.18	3.6-5.5	High---------	0.32		
	25-60	20-40	1.25-1.45	0.2-0.6	0.16-0.24	3.6-5.5	Moderate-----	0.37		
SH:										
Savannah--------	0-9	3-16	1.45-1.65	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24	3	.5-3
	9-29	18-32	1.55-1.75	0.6-2.0	0.13-0.20	4.5-5.5	Low----------	0.28		
	29-72	18-32	1.60-1.80	0.2-0.6	0.05-0.10	4.5-5.5	Low----------	0.24		
Sacul-----------	0-9	5-25	1.30-1.50	0.6-2.0	0.10-0.20	3.6-5.5	Low----------	0.32	5	.5-3
	9-26	35-60	1.20-1.35	0.06-0.2	0.12-0.18	3.6-5.5	High---------	0.32		

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
St---------------- Sterlington	0-10	10-18	1.30-1.65	0.6-2.0	0.18-0.22	4.5-6.0	Low-----------	0.43	5	.5-4
	10-53	10-18	1.30-1.70	0.6-2.0	0.18-0.22	4.5-6.5	Low-----------	0.37		
	53-80	10-30	1.30-1.70	0.6-2.0	0.18-0.22	5.1-8.4	Low-----------	0.37		
Tp---------------- Tippah	0-5	5-20	1.35-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Low-----------	0.49	5	.5-3
	5-34	20-35	1.40-1.50	0.6-2.0	0.19-0.21	4.5-6.0	Moderate------	0.43		
	34-60	40-55	1.20-1.55	0.06-0.2	0.16-0.18	4.5-6.0	High----------	0.24		
YO---------------- Yorktown	0-10	40-65	1.15-1.45	<0.06	0.12-0.18	4.5-7.3	High----------	0.32	5	---
	10-59	60-80	1.15-1.45	<0.06	0.12-0.18	4.5-7.3	Very high----	0.32		
	59-72	60-80	1.15-1.45	<0.06	0.12-0.18	7.4-8.4	Very high----	0.32		

TABLE 17.--WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

		Flooding	High water table

TABLE 17.--WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
IE------------------------ Iuka	C	Frequent--------	Very brief to long.	Dec-Apr	1.0-3.0	Apparent	Dec-Apr
LA:							
Larue-------------------	A	None------------	---	---	>6.0	---	---
Smithdale---------------	B	None------------	---	---	>6.0	---	---
OC:							
Olla--------------------	B	None------------	---	---	>6.0	---	---
Cadeville---------------	D	None------------	---	---	>6.0	---	---
Pe, Pf------------------ Perry	D	None------------	---	---	0-2.0	Apparent	Dec-Jun
Pg---------------------- Perry	D	Occasional------	Brief to very long.	Dec-Jun	0-2.0	Apparent	Dec-Jun
Pk:							
Perry-------------------	D	Rare------------	---	---	0-2.0	Apparent	Dec-Jun
Hebert------------------	C	Rare------------	---	---	1.5-3.0	Apparent	Dec-Apr
Pm, Pn------------------ Portland	D	None------------	---	---	0-2.0	Perched	Dec-May
Po---------------------- Providence	C	None------------	---	---	1.5-3.0	Perched	Jan-Mar
Rg---------------------- Rilla	B	None------------	---	---	4.0-6.0	Apparent	Dec-Apr
Rk:							
Rilla-------------------	B	None------------	---	---	4.0-6.0	Apparent	Dec-Apr
Hebert------------------	C	None------------	---	---	1.5-3.0	Apparent	Dec-Apr
Ru---------------------- Ruston	B	None------------	---	---	>6.0	---	---
SC---------------------- Sacul	C	None------------	---	---	2.0-4.0	Apparent	Dec-Apr
SH:							
Savannah----------------	C	None------------	---	---	1.5-3.0	Perched	Jan-Mar
Sacul-------------------	C	None------------	---	---	2.0-4.0	Apparent	Dec-Apr
St---------------------- Sterlington	B	None------------	---	---	>6.0	---	---
Tp---------------------- Tippah	C	None------------	---	---	2.0-2.5	Perched	Dec-Apr
YO---------------------- Yorktown	D	Frequent--------	Very long-----	Jan-Dec	+5-0.5	Apparent	Jan-Dec

TABLE 18.--FERTILITY TEST DATA OF SELECTED SOILS

TABLE 18.--FERTILITY TEST DATA OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	pH 1:1	Organic carbon	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation exchange capacity (sum)	Base saturation (sum)	Saturation: Aluminum Effective cation exchange capacity	Saturation: Sodium Sum of cation exchange capacity
	In			Pct	Ppm	Meq/100g								Pct	Pct	Pct
Frizzell silt loam: (S85LA-21-09)	0-4	A	4.9	0.99	<5	1.3	0.7	0.0	0.0	1.2	0.4	5.8	7.8	25.6	33.3	0.0
	4-18	B/E1	4.9	0.15	<5	0.8	0.5	0.0	0.1	2.3	0.3	4.7	6.1	23.0	57.5	1.6
	18-35	B/E2	5.3	0.06	<5	1.6	1.1	0.0	0.6	3.8	0.0	7.2	10.5	31.4	53.5	5.7
	35-51	Bt1	5.0	0.06	<5	2.2	2.2	0.1	1.6	4.4	0.2	8.6	14.7	41.5	41.1	10.9
	51-72	Bt2	4.8	0.00	<5	3.0	2.8	0.1	2.3	1.2	0.5	4.3	12.5	65.6	12.1	18.4
Gallion silt loam: (S84LA-21-08)	0-5	Ap	6.8	2.00	800	13.1	1.0	0.6	0.1	0.0	0.0	2.9	17.8	83.7	0.0	0.6
	5-9	A	7.1	0.46	500	9.6	0.7	0.3	0.1	0.0	0.0	2.5	13.8	81.1	0.0	0.7
	9-23	Bt1	6.7	0.10	500	12.6	2.4	0.6	0.1	0.0	0.0	4.0	19.8	79.8	0.0	0.8
	23-31	Bt2	6.5	0.01	580	10.0	2.1	0.7	0.1	0.0	0.0	4.0	17.0	76.5	0.0	0.6
	31-46	BC	6.7	0.01	360	8.3	1.2	0.6	0.1	0.0	0.0	2.5	12.7	80.4	0.0	1.0
	46-64	C	6.7	0.01	360	7.7	1.0	0.5	0.1	0.0	0.0	2.5	11.9	78.9	0.0	0.8
Gore silt loam: (S84LA-21-10)	0-6	Ap	4.1	0.50	10	6.2	3.5	0.4	0.2	3.9	0.0	10.1	20.4	50.5	27.5	7.0
	6-14	Bt1	4.4	0.32	5	11.0	10.1	0.6	1.0	15.6	0.2	19.4	42.1	53.9	40.5	2.4
	14-28	Bt2	4.3	0.15	5	12.7	13.0	0.6	1.6	13.9	0.4	18.4	46.3	60.3	32.9	3.5
	28-40	Bt3	4.6	0.10	5	16.3	17.1	0.5	3.6	4.9	0.2	11.0	48.5	77.3	11.5	7.4
	40-71	BC	6.9	0.10	14	14.8	17.4	0.4	5.9	0.0	0.0	4.0	42.5	90.6	0.0	13.9
Guyton silt loam: (S84LA-21-13)	0-4	A	4.4	2.89	5	3.8	0.9	0.2	0.3	1.2	0.2	11.9	17.1	30.4	18.2	1.8
	4-16	Eg1	4.3	0.72	5	1.7	0.7	0.1	0.1	3.8	0.3	9.7	12.3	21.1	56.7	0.8
	16-24	Eg2	4.2	0.24	5	1.2	0.9	0.1	0.1	5.7	0.5	10.8	13.1	17.6	67.1	0.8
	24-46	B/E	4.7	0.19	5	2.7	2.2	0.1	1.3	7.5	0.2	11.4	17.7	35.6	53.6	7.3
	46-62	Btg1	4.5	0.15	5	3.7	2.3	0.1	1.6	3.1	0.1	8.6	16.3	47.2	28.4	9.8
Hebert silt loam: 2/	0-6	Ap	4.5	1.87	37	5.7	2.0	0.2	0.2	0.7	0.3	6.8	14.9	54.3	7.7	1.3

TABLE 18.--FERTILITY TEST DATA OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	pH 1:1	Organic carbon	Extractable phosphorus	Exchangeable cations: Ca	Exchangeable cations: Mg	Exchangeable cations: K	Exchangeable cations: Na	Exchangeable cations: Al	Exchangeable cations: H	Total acidity	Cation exchange capacity (sum)	Base saturation (sum)	Saturation: Aluminum, Effective cation exchange capacity	Saturation: Sodium, Sum of cation exchange capacity
	In			Pct	Ppm	Meq/100g								Pct	Pct	Pct
Portland clay:	0-5	Ap	7.2	2.05	53	38.6	17.8	0.8	2.6	0.0	0.0	9.4	69.2	86.4	0.0	3.8
(S84LA-21-17)	5-14	Bw1	7.3	0.90	13	34.1	24.1	0.7	6.5	0.0	0.0	9.0	74.4	87.9	0.0	8.7
	14-28	Bw2	7.9	0.59	141	46.3	25.9	0.8	7.0	0.0	0.0	7.6	87.6	91.3	0.0	8.0
	28-52	Bw3	8.2	0.41	137	42.9	26.4	0.9	8.8	0.0	0.0	6.8	85.8	92.1	0.0	10.3
	52-72	C	8.1	0.37	144	19.0	26.6	0.8	11.7	0.0	0.0	6.8	64.9	89.5	0.0	18.0
Prentiss fine sandy loam:	0-5	Ap	5.1	1.07	<5	1.9	0.6	0.1	0.0	0.4	0.2	5.8	8.4	31.0	12.5	0.0
(S84LA-21-07)	5-16	Bw1	5.0	0.10	<5	1.7	1.0	0.1	0.1	2.4	0.3	6.5	9.4	30.9	42.9	1.1
	16-24	Bw2	5.1	0.01	<5	1.1	0.8	0.1	0.1	2.1	0.1	4.7	6.8	30.9	48.8	1.5
	24-37	Btx1	5.1	0.00	<5	0.9	0.8	0.1	0.1	2.2	0.3	4.8	6.7	28.4	50.0	1.5
	37-51	Btx2	5.2	0.01	<5	0.7	0.6	0.1	0.1	2.3	0.1	4.3	5.8	25.9	59.0	1.7
	51-64	Btx3	5.2	0.00	<5	0.9	1.0	0.1	0.3	2.4	0.0	4.5	6.8	33.8	51.1	4.4
Providence silt loam:	0-2	A	5.2	2.84	5	3.8	1.6	0.3	0.1	0.6	0.3	6.5	12.3	47.2	9.0	0.8
(S84LA-21-15)	2-6	E	4.9	1.07	5	2.7	1.3	0.1	0.1	0.7	0.3	6.8	11.0	38.2	13.5	0.9
	6-16	Bt1	4.8	0.41	5	4.0	2.9	0.2	0.2	2.4	0.2	7.7	15.0	48.7	24.2	1.3
	16-24	Bt2	4.9	0.19	5	2.6	2.6	0.1	0.1	3.1	0.3	8.6	14.0	38.6	35.2	0.7
	24-30	Btx1	4.9	0.10	5	1.7	2.0	0.1	0.1	3.1	0.3	8.1	12.0	32.5	42.5	0.8
	30-37	Btx2	4.8	0.10	5	1.6	1.9	0.1	0.1	3.4	0.1	7.9	11.6	31.9	47.2	0.9
	37-49	Btx2	4.7	0.10	5	1.5	2.1	0.1	0.1	4.5	0.1	8.8	12.6	30.2	53.6	0.8
	49-54	Btx3	4.8	0.10	5	1.7	2.4	0.1	0.2	4.2	0.2	8.3	12.7	34.6	47.7	1.6
	54-72	2Bt3	4.8	0.06	5	3.1	3.6	0.1	0.2	3.6	0.8	8.5	15.5	45.2	31.6	1.3
Rilla silt loam:	0-6	Ap	5.3	0.54	96	3.6	1.3	0.3	0.1	0.0	0.0	3.1	8.4	63.1	0.0	1.2
(S84LA-21-06)	6-10	E	5.2	0.37	58	3.8	1.1	0.3	0.1	0.0	0.0	3.2	8.5	62.6	0.0	1.3
	10-18	Bt1	4.5	0.10	23	7.0	2.3	0.2	0.2	3.6	0.2	9.7	19.3	49.7	26.9	0.8
	18-29	Bt2	4.6	0.02	41	6.7	3.0	0.2	0.2	2.1	0.4	7.0	17.1	59.0	16.7	1.0
	29-48	Bt3	4.8	0.01	61	3.6	1.5	0.1	0.1	0.6	0.4	3.8	9.0	57.8	9.7	1.3
	48-56	Bt4	4.7	0.01	96	5.7	2.6	0.1	0.2	0.6	0.3	4.5	13.1	65.5	6.3	1.4
	56-68	C	5.0	0.01	93	6.3	3.2	0.2	0.2	0.3	0.3	2.9	12.8	77.3	2.9	1.8
Ruston fine sandy loam:	0-3	A	5.6	0.50	10	1.0	0.3	0.0	0.0	0.2	0.2	2.4	3.7	35.1	11.8	0.0
(S86LA-21-01)	3-8	E	5.7	0.24	5	0.9	0.3	0.0	0.0	0.2	0.2	1.5	2.7	44.4	12.5	0.0
	8-25	Bt1	4.8	0.15	5	0.8	1.4	0.2	0.0	3.2	0.1	8.1	10.5	22.9	56.1	0.0
	25-49	Bt2	4.8	0.01	5	0.6	0.9	0.1	0.0	2.2	0.1	6.0	7.6	21.1	56.4	0.0
	49-68	B/E	5.1	0.01	11	0.5	0.3	0.0	0.0	0.5	0.2	2.0	2.8	28.6	33.3	0.0
	68-84	B't1	4.8	0.01	5	0.6	2.7	0.2	0.1	3.2	0.3	7.8	11.4	31.6	45.1	0.9
Savannah fine sandy loam:	0-9	A	5.0	0.72	<5	1.4	0.4	0.0	0.0	1.3	0.1	5.8	7.6	23.7	40.6	3.5
(S84LA-21-14)	9-20	Bt1	5.2	0.06	<5	0.9	0.8	0.1	0.1	3.3	0.2	8.4	10.3	18.4	61.1	1.1
	20-29	Bt2	5.3	0.00	<5	0.3	0.5	0.1	0.1	2.9	0.3	6.6	7.6	13.2	69.0	0.6
	29-44	Btx1	5.4	0.00	<5	0.4	0.5	0.0	0.2	3.3	0.2	6.3	7.4	14.9	71.7	0.8
	44-55	Btx2	5.4	0.00	<5	1.0	1.0	0.1	0.5	4.3	0.3	8.1	10.7	24.3	59.7	1.0
	55-72	Btx3	5.3	0.00	<5	1.7	1.5	0.1	0.6	3.6	0.4	7.4	11.3	34.5	45.6	1.1
Smithdale fine sandy loam:	0-7	A	5.3	0.72	<5	0.8	0.3	0.1	0.0	0.7	0.1	3.4	4.6	26.1	35.0	0.0
(S85LA-21-04)	7-14	E	5.5	0.15	<5	0.6	0.3	0.0	0.0	0.6	0.0	1.8	2.7	33.3	40.0	0.0
	14-38	Bt1	4.9	0.06	<5	0.4	1.8	0.2	0.0	6.3	0.3	10.8	13.2	18.2	70.0	0.0
	38-59	Bt2	4.9	0.00	<5	0.2	1.5	0.1	0.0	5.6	0.3	10.1	11.9	15.1	72.7	0.0
	59-83	Bt3	4.8	0.00	<5	0.3	1.4	0.1	0.0	4.8	0.5	8.8	10.6	17.0	67.6	0.0
	83-95	Bt4	4.8	0.00	<5	0.3	1.6	0.1	0.0	4.4	0.2	7.6	9.6	20.8	66.7	0.0

See footnotes at end of table.

TABLE 18.--FERTILITY TEST DATA OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	pH	Organic car-	Extract- able	Exchangeable cations	Total acid-	Cation ex-	Base satu-	Saturation: Alumi- num	Saturation: Sodium

COLE 1/
0.019
0.037
0.041
0.036
0.028
0.032
0.043

TABLE 19.--PHYSICAL TEST DATA OF SELECTED SOILS--Continued

zon	Particle-size distribution: Sand: Very coarse (2-1 mm)	Coarse (1.0-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.10 mm)	Very fine (0.1-0.05 mm)	Total (2.0-0.5 mm)	Silt (0.25-0.002 mm)	Clay (0.002 mm)	Fine clay (0.0002 mm)	Water content at tension: 1/3 bar	15 bar	WRD	Bulk density: 1/3 bar	Oven-dry	Field moist	COLE 1/
	Pct									Pct (wt)			G/cm^3			
	0.0	0.0	0.0	0.6	18.3	18.9	73.1	8.0	2.9	20.8	4.2	0.26	1.54	1.57	---	0.006
	0.2	0.4	0.4	1.1	26.3	28.4	63.2	8.4	3.0	19.7	4.0	0.25	1.60	1.61	---	0.002
	0.0	0.0	0.0	0.8	19.0	19.8	59.3	20.9	13.6	23.4	9.2	0.22	1.53	1.66	---	0.028
	0.0	0.0	0.0	0.7	17.2	17.9	58.9	23.2	17.5	23.4	10.5	0.20	1.53	1.65	---	0.025
	0.0	0.0	0.1	1.5	27.5	29.1	54.4	16.5	11.1	19.9	7.9	0.19	1.55	1.62	---	0.015
	0.0	0.1	0.1	1.2	43.0	44.3	45.6	10.1	5.8	18.1	5.8	0.19	1.52	1.56	---	0.009
	0.0	0.0	0.1	0.2	1.1	1.5	75.8	22.7	13.3	24.5	11.6	0.19	1.49	1.59	---	0.022
	0.0	0.0	0.1	0.3	3.6	4.0	77.3	18.7	11.3	24.8	9.3	0.23	1.48	1.57	---	0.020

F Linear Extensibility): A quantitative method of determining shrink-swell behavior of soil. It is an
ponent of swelling of a natural soil clod. COLE is expressed as: low (0.03), moderate (0.03-0.06), and

ional Soil Survey Laboratory, Soil Conservation Service, Lincoln, Nebraska.
l Characterization Laboratory, Louisiana Agricultural Experiment Station, Louisiana State University,

.1 percent more clay than is typical for the Perry series, and the reaction of the Bg1 horizon is 0.1
or the series. These differences are within the normal errors of observation.
led as Rilla silt loam. It is closely similar to the Rilla series, but the clay content of the Ap, E,
than is allowed in the series range. The pedon classifies as fine-silty, mixed, thermic Typic Hapludalfs.
outheast of Hebert; NW1/4SE1/4 sec. 34, T. 14 N., R. 5 E.

TABLE 20.--CHEMICAL ANALYSES OF SELECTED SOILS

[TR means trace. The symbol < means less than. Dashes indicate analyses were not made]

Soil name and sample number	Depth	Horizon	Extractable bases Ca	Extractable bases Mg	Extractable bases K	Extractable bases Na	Extractable acidity	Cation exchange capacity (NH₄OAc)	Base saturation (NH₄OAc)	Organic carbon	pH H_2O 1:1	pH KCl 1:1	pH $CaCl_2$ 1:2	Extractable iron	Extractable aluminum	Extractable hydrogen	Extractable phosphorus
	In		Meq/100g						Pct	Pct				Pct	Meq/100g		Ppm
Hebert silt loam: 1/ (S84LA-21-20)	0-6	Ap	12.1	2.6	0.1	0.1	4.2	14.4	100	1.63	6.2	5.4	6.1	0.7	0.1	---	---
	6-13	Bt1	11.9	5.7	0.2	0.2	4.1	17.6	100	0.44	6.4	4.9	5.9	0.9	0.1	---	---
	13-21	Bt2	9.6	7.0	0.3	0.5	5.2	17.5	99	0.21	5.8	4.1	5.2	0.8	0.1	---	---
	21-35	Bt3	8.1	6.7	0.3	0.6	4.9	16.4	96	0.15	5.5	4.0	5.0	0.8	0.1	---	---
	35-44	Bt4	7.1	6.3	0.2	0.6	4.0	14.6	97	0.14	5.6	4.1	5.2	0.8	0.1	---	---
	44-54	Bt5	7.3	6.7	0.2	0.7	5.0	16.0	93	0.13	5.9	4.4	5.4	0.7	0.1	---	---
	54-72	BC	11.2	9.7	0.4	1.1	5.5	21.4	100	0.18	5.9	4.5	5.6	1.2	0.1	---	---
Olla fine sandy loam: 2/ (S86LA-21-04)	0-6	A	0.1	0.1	0.1	0.4	2.7	3.0	23.3	0.34	4.4	3.8	4.2	0.2	1.3	0.2	<5
	6-16	Bt1	2.4	1.9	0.1	0.2	9.5	12.8	35.9	0.28	4.6	3.6	4.0	0.8	4.9	0.6	<5
	16-24	Bt2	1.6	1.5	0.1	0.4	8.9	10.6	34.0	0.16	4.9	3.6	4.0	0.6	4.7	0.4	<5
	24-38	Bt3	0.9	1.3	0.1	0.2	4.6	6.6	37.9	0.09	4.8	3.8	4.0	0.3	2.8	0.4	<5
	38-64	BC	0.1	1.9	0.1	0.2	8.0	10.2	22.5	0.06	4.7	3.6	3.9	0.3	5.5	0.2	<5
	64-72	C	0.0	2.8	0.1	0.3	9.5	12.0	26.7	0.06	4.6	3.5	3.8	0.2	6.8	0.2	<5
Perry clay: 1/ 3/ (S85LA-21-03)	0-5	Ap	30.4	15.3	1.7	0.6	12.2	51.0	---	1.64	6.0	4.5	5.6	1.4	0.2	---	---
	5-11	Bg1	27.2	16.6	1.5	0.8	15.5	51.7	47.0	1.51	5.0	3.9	4.7	1.2	0.2	---	---
	11-19	Bg2	30.6	18.7	1.5	1.4	13.0	52.7	52.5	1.29	5.1	4.1	5.1	1.5	0.2	---	---
	19-46	2BC	---	23.6	1.2	3.0	---	46.4	---	0.47	7.9	6.9	7.9	1.1	0.1	---	---
	46-60	2C	---	22.1	1.3	4.2	---	43.9	---	0.44	7.9	7.0	7.9	1.3	0.1	---	---
Providence silt loam: 1/ (S84LA-21-18)	6-24	Bt1, Bt2	2.8	2.8	---	0.2	7.3	9.7	60	0.18	5.2	---	4.7	---	---	---	---
	54-72	2Bt3	1.5	3.5	---	0.2	6.8	10.2	51	0.05	4.9	---	4.2	---	---	---	---

See footnotes at end of table.

TABLE 20.--CHEMICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Extractable bases: Mg	Extractable bases: K	Extractable bases: Na	Extractable acidity	Cation exchange capacity (NH₄OAc)	Base saturation (NH₄OAc)	Organic carbon	pH H_2O 1:1	pH KCl 1:1	pH $CaCl_2$ 1:2	Extractable iron	Extractable aluminum	Extractable hydrogen	Extractable phosphorus
	In		Meq/100g						Pct	Pct				Pct	Meq/100g		Ppm
SND: (series not designated; Rg, Rilla silt loam) 1/ 4/ (S84LA-21-21)	0-8	Ap	3.1	0.8	0.3	TR	3.3	5.1	82	0.66	5.7	4.9	5.2	TR	TR	---	---
	8-16	E	3.2	0.7	TR	0.1	3.5	4.5	89	0.19	5.1	4.2	4.8	0.5	0.1	---	---
	16-22	Bt1	7.8	2.2	0.2	0.1	4.9	11.0	94	0.20	5.2	4.0	5.0	0.7	0.1	---	---
	22-29	Bt2	8.8	3.2	0.2	0.1	6.5	13.1	94	0.19	5.1	3.9	4.9	0.7	0.1	---	---
	29-41	Bt3	6.1	2.5	0.1	0.1	4.8	9.9	89	0.15	5.0	3.9	4.7	0.6	0.1	---	---
	41-65	BC	4.2	1.9	0.1	0.1	3.6	7.2	87	0.09	4.9	3.8	4.7	0.6	0.1	---	---
	65-78	C1	10.3	5.6	0.3	0.2	6.0	16.7	98	0.10	5.3	3.7	4.6	0.9	0.1	---	---
	78-86	C2	8.1	4.8	0.3	0.2	4.5	14.1	95	0.11	5.3	3.8	4.7	0.8	0.1	---	---

1/ Analyses by the National Soil Survey Laboratory, Soil Conservation Service, Lincoln, Nebraska.

2/ Analyses by the Soil Characterization Laboratory, Louisiana Agricultural Experiment Station, Louisiana State University, Baton Rouge, Louisiana.

3/ The Ap horizon has 1.1 percent more clay than is typical for the Perry series, and the reaction of the Bg1 horizon is 0.1 unit lower than is typical for the series. These differences are within the normal errors of observation.

4/ This pedon was sampled as Rilla silt loam. It is closely similar to the Rilla series, but the clay content of the Ap, E, BC, and C2 horizons is less than is allowed in the series range. The pedon classifies as fine-silty, mixed, thermic Typic Hapludalfs. The pedon is about 3 miles southeast of Hebert; NW1/4SE1/4 sec. 34, T. 14 N., R. 5 E.

TABLE 21.--MINERALOGY DATA OF SILT AND CLAY FRACTIONS OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Resis-tant	Silt fraction 1/	Clay fraction 1/
				2-50 micron	0.2-2.0 micron
	In			Percent	Relative amounts
Hebert silt loam: 2/ (S84LA-21-20)	13-21	Bt2	80	QZ75, FK18, OP2, RA1, OR1, BA1, TM1, MS1, HN1	MT3, MI3, KK3, VR2, LE1
	54-72	BC	76	QZ72, FK16, MS6, OP2, RA1, OR1, BA1, ZR1, TM1	MT3, MI3, KK3, VR3
Olla fine sandy loam: 3/ (S86LA-21-04)	6-16	Bt1	95	QZ95, IO4, PK4, MI2	
	16-24	Bt2	95	QZ95, IO4, PK4, MI2	
Perry clay: 2/ (S85LA-21-03)	11-19	Bg2			MI4, MT4, KK3, LE1
	46-60	2C			MI3, MT3, KK2, QZ1
Providence silt loam: 2/ (S84LA-21-18)	6-24	Bt1, Bt2	78	QZ77, FK16, AR2, MS2, BT1, ZR1, TM1, PO1, HN1	KK3, VM2, MI2, VR2, GE2
	54-72	2Bt3	88	QZ85, FK9, HN2, OP2, AR2, MS1, ZR1, TM1	KK4, VM3, GE2, MI1
SND: 2/ 4/ (series not designated; Rg, Rilla silt loam) (S84LA-21-21)	22-29	Bt2	79	QZ77, FK15, MS5, OP1, RA1, SP1, OR1, AM1, TM1	KK3, MT2, VR2
	65-78	C1	73	QZ67, FK19, MS7, RA3, OP1, ZR1, AM1, TM1	MT3, MI3, VR3, KK3, QZ1

1/ Code for mineralogical data in Silt fraction and Clay fraction columns: The letter represents the kind of mineral (A), and the number represents the quantity (percent or relative amount) of mineral (B). Minerals are listed in the table in order of abundance, decreasing from left to right.

A. Kind of mineral:
AR--weathered aggregates
LE--lepidocrocite
OP--opaques
QZ--quartz
RA--resistant aggregates
TM--tourmaline
BT--biotite
PK--potassium feldspars
HN--hornblende
MI--mica
MS--muscovite
MT--montmorillonite
VR--vermiculite
KK--kaolinite
OR--other resistant minerals
ZR--zircon
IO--iron oxides
PO--plant opal
GE--goethite
VM--vermiculite-mica
SP--sphene
AM--amphibole

B. Relative amounts:
6--indeterminate
5--dominant
4--abundant
3--moderate
2--small
1--trace

2/ Analyses by the National Soil Survey Laboratory, Soil Conservation Service, Lincoln, Nebraska.
3/ Analyses by the Soil Characterization Laboratory, Louisiana Agricultural Experiment Station, Louisiana State University, Baton Rouge, Louisiana.
4/ This pedon was sampled as Rilla silt loam. It is closely similar to the Rilla series, but the clay content of the Ap, E, BC, and C2 horizons is less than is allowed in the series range. The pedon is about 3 miles southeast of Hebert; NW1/4SE1/4 sec. 34, T. 14 N., R. 5 E.

TABLE 22.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Alligator	Very fine, montmorillonitic, acid, thermic Vertic Haplaquepts
Arents	Arents
Bayoudan	Very fine, montmorillonitic, thermic Aquentic Chromuderts
*Brimstone	Fine-silty, siliceous, thermic Glossic Natraqualfs
Cadeville	Fine, mixed, thermic Albaquic Hapludalfs
Cahaba	Fine-loamy, siliceous, thermic Typic Hapludults
Falkner	Fine-silty, siliceous, thermic Aquic Paleudalfs
*Forestdale	Fine, montmorillonitic, thermic Typic Ochraqualfs

TABLE 23.--FORMATIVE ELEMENTS AND ADJECTIVES OF THE HIGHER TAXONOMIC CLASSES

[The symbol < means less than]

Formative element or adjective	Connotation (simplified explanation) or meaning
Aeric	Browner or better aerated than typic.
Alb	A surface or a lower horizon in which clay and free iron oxides have been removed or in which the oxides have been segregated to the extent that the color of the horizon is determined by the color of the primary sand and silt colors rather than by coatings on these particles.
Alf	Mineral soils; an illuvial horizon of silicate clays; high base saturation.
Aqu	A soil that is wet or that has been artificially drained.
Dystr	Have base saturation <60 percent in all subhorizons between depths of 25 centimeters and 75 centimeters below the soil surface.
Ent	Mineral soils; weak or no pedogenic horizons; no deep, wide cracks in most years.
Ept	Mineral soils; some pedogenic horizons and some weatherable minerals.
Fluv	Composed of recent alluvium.
Frag	Presence of a fragipan.
Glossic	The presence of albic material that tongues or interfingers.
Hapl	The simplest set of horizons.
Hydr	The presence of water.
Ist	Organic in more than half of upper 80 centimeters.
Med	A soil of mid altitudes.
Natr	Presence of natric horizon.
Ochr	A surface horizon that is either light in color, low in organic matter, or both.
Pale	A soil having horizons that have more than normal development.
Sapr	Composed mostly of highly decomposed plant material.
Ud	Moist but not wet, and dry for short periods or not at all.

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