SOIL SURVEY OF

Ascension Parish, Louisiana

United States Department of Agriculture
Soil Conservation Service
In cooperation with
Louisiana Agricultural Experiment Station

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in the period 1970–71. Soil names and descriptions were approved in 1972. Unless otherwise indicated, statements in the publication refer to conditions in the parish in 1971. This survey was made cooperatively by the Soil Conservation Service and the Louisiana Agricultural Experiment Station. It is part of the technical assistance furnished to the Lower Delta and New River Soil and Water Conservation Districts.

HOW TO USE THIS SOIL SURVEY

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

Locating Soils

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

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

Finding and Using Information

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

Individual colored maps showing the relative suitability or degree of limitation of soils for many specific purposes can be developed by using the soil map and the information in the text. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from the soil descriptions and from the section "Crops and Pasture."

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

Wildlife managers and others can find information about soils and wildlife in the section "Wildlife Habitat."

Engineers, builders, community planners, and others can read about soil properties that affect the choice of sites for dwellings, industrial buildings, and recreation areas in the section "Engineering Uses of the Soils." They also can find tables that contain estimates of soil properties and information about soil features that affect engineering practices.

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

Newcomers in Ascension Parish may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the information about the county given in the section "General Nature of the Parish."

Cover: Forest of baldcypress and water tupelo on Barbary association.

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SOIL SURVEY OF ASCENSION PARISH, LOUISIANA

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

ASCENSION PARISH is in the southeastern part of Louisiana, about 15 miles southeast of Baton Rouge (fig. 1). Donaldsonville is the parish seat. The total land area is 192,000 acres. The population of the parish in 1970 was 37,086. The Mississippi River meanders across the southwestern part of the parish and flows from northwest to southeast. About 18 percent or 34,000 acres is west of the Mississippi River. The elevation ranges from about 30 feet above sea level in the northwestern part to less than 1 foot above sea level in the low, backswamp areas in the southeastern part of the parish.

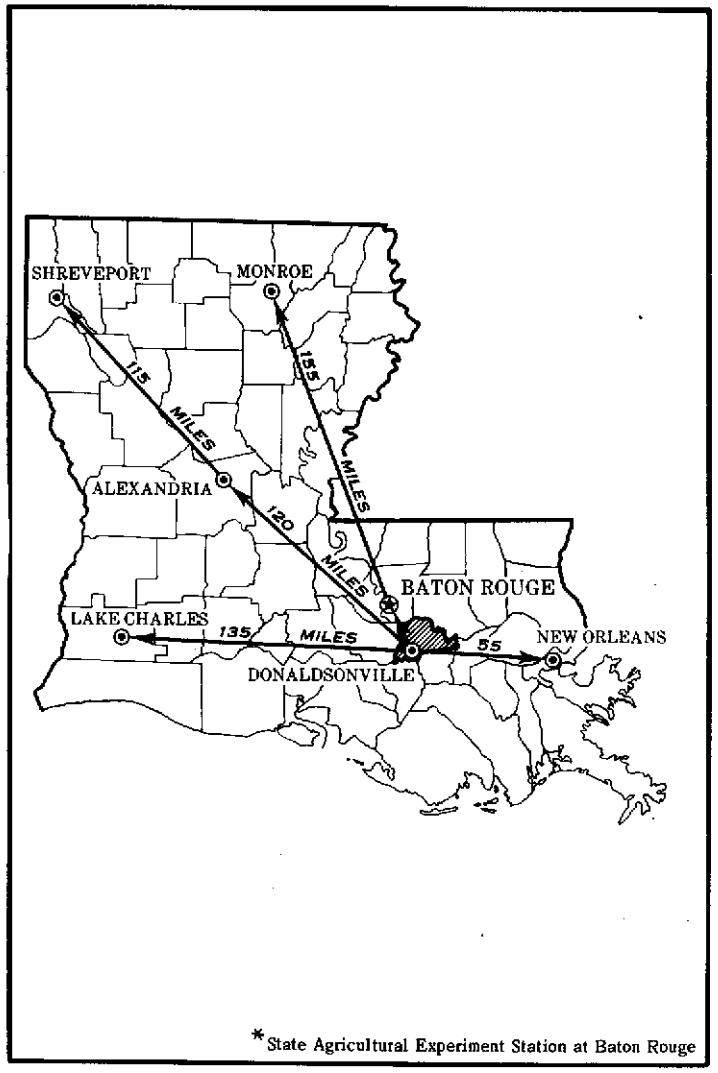

Figure 1.—**Location of Ascension Parish in Louisiana.**

The north and central parts of the parish consist mainly of level or nearly level, Pleistocene-age terrace uplands (*5*).[1] This area is dissected by small drainageways. The most northern part, which is nearly level, is dissected to a greater degree than the more level southern part. Steep slopes occur along the escarpment adjacent to the alluvial plain along the Mississippi River in the northwestern part of the parish. The soils in this area formed from loesslike deposits that are low in sand content, are 4 to 8 feet thick, and are underlain by clayey sediment in most places. Nearly all the soils are poorly drained or somewhat poorly drained. They are low to moderate in natural fertility but respond fairly well to fertilizer. Most of the soils are suited to locally adapted cultivated crops and pasture plants. Many tracts of land are used for residential subdivisions.

The remaining part of the parish consists of natural levees and backswamps of the alluvial plain along the Mississippi River. The natural levees consist of soils that formed in loamy and clayey sediment deposited by the Mississippi River and its distributaries. Major inactive distributaries in the parish are Bayou Lafourche, New River, and Bayou Manchac. Along two of these distributaries, Bayou Lafourche (west of the Mississippi River) and New River (east of the Mississippi River in the central part of the parish), rather extensive natural levee systems have developed. A manmade levee system along the Mississippi River protects the soils from flooding by the river. The soils are poorly drained or somewhat poorly drained. Most soils are high in natural fertility and are some of the better farm soils in the parish. Many of the soils are well suited to the common cultivated crops and pasture plants that are locally grown.

The level backswamp areas of the alluvial plain along the Mississippi River are most extensive in the eastern and southeastern part of the parish, but a small area, locally known as Bluff Swamp, is in the northwestern part of the parish. The soils of the backswamp areas formed in clayey sediment deposited mainly by the Mississippi River and its distributaries. Most of them have an organic surface layer as much as about 8 inches thick. The present

[1] Italic numbers in parentheses refer to Literature Cited, p. 53.

vegetation is dominantly cypress-tupelo forest. Almost none of the backswamp area has been cleared. The swamps are flooded by water that runs off higher areas and by water from the Amite River. Because of the flooding, this area has not been developed.

Wetness is a concern on many of the soils throughout the parish. The hazard of flooding on soils at the lower elevations is a major concern.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soils are in Ascension Parish, where they are located, and how they can be used. The soil scientists went into the county knowing they were likely to find many soils they had already seen and perhaps some they had not. They observed the steepness, length, and shape of slopes, the size and speed of streams, the kinds of native plants or crops, and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by the action of plant roots.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. The *soil series* and the *soil phase* are the categories of soil classification most used in a local survey.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Acy and Galvez, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

Soils of one series can differ in texture of the surface layer and in slope, stoniness, or some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Sharkey clay, frequently flooded, is one of several phases within the Sharkey series.

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

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

Some mapping units are made up of soils of different series, or of different phases within one series. Three such kinds of mapping units are shown on the soil map of Ascension Parish: soil complexes, soil associations, and undifferentiated groups.

A soil complex consists of areas of two or more soils, so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area of a complex contains some of each of the two or more dominant soils, and the pattern and relative proportions are about the same in all areas. The name of a soil complex consists of the names of the dominant soils, joined by a hyphen. Deerford-Verdun complex is an example.

A soil association is made up of adjacent soils that occur as areas large enough to be shown individually on the soil map but are shown as one unit because the time and effort of delineating them separately cannot be justified. There is a considerable degree of uniformity in pattern and relative extent of the dominant soils, but the soils may differ greatly one from another. The name of an association consists of the names of the dominant soils, joined by a hyphen. Fausse-Galvez association is an example.

An undifferentiated group is made up of two or more soils that could be delineated individually but are shown as one unit because, for the purpose of the soil survey, there is little value in separating them. The pattern and proportion of soils are not uniform. An area shown on the map may be made up of only one of the dominant soils, or of two or more. Convent soils, frequently flooded, is an example.

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

Soil scientists observe how soils behave when used as a growing place for native and cultivated plants, and as material for structures, foundations for structures, or covering for structures. They relate this behavior to properties of the soils. For example, they observe that filter fields for onsite disposal of sewage fail on a given kind of soil, and they relate this to the slow permeability of the soil or a high water table. They see that streets, road pavements, and foundations for houses are cracked on a named kind of soil and they relate this failure to the high shrink-swell potential of the soil material. Thus, they use observation and knowledge of soil properties, together with available research data, to predict limitations or suitability of soils for present and potential uses.

After data have been collected and tested for the key, or benchmark, soils in a survey area, the soil scientists set up trial groups of soils. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others. They then adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under current methods of use and management.

General Soil Map

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

A map showing soil associations is useful to people who want a general idea of the soils in a parish, or who want to compare different parts of a parish, or who want to know the location of large tracts that are suitable for a certain kind of land use. Such a map is a useful general guide in managing a watershed, a wooded tract, or a wildlife area, or in planning engineering works, recreational facilities, and community developments. It is not a suitable map for planning the management of a farm or field, or for selecting the exact location of a road, building, or other structure, because the soils in any one association ordinarily differ in slope, depth, texture, drainage, and other characteristics that affect their management.

The soil associations in this parish have been grouped into three general kinds of landscapes for broad interpretative purposes. Each of the broad groups and the soil associations in each group are described in the following pages. The relationship of associations to elevation and parent material is shown in figure 2. The terms for texture used in the headings for these groups apply to the texture of the surface layer and subsoil. For example, in the heading "Loamy Soils on Terrace Uplands" the word "loamy" refers to the texture of the surface layer and subsoil.

Loamy Soils on Terrace Uplands

The three soil associations in this group consist of level to very gently sloping, somewhat poorly drained and poorly drained, loamy soils on terrace uplands. These soils formed in sediment that is very low in content of sand. This sediment was possibly deposited by wind during the Pleistocene age. Slopes are mainly 0 to 2 percent, but they range to as much as 30 percent adjacent to the alluvial plain along the Mississippi River. Soils that have a high sodium content are in the area. These associations make up about 26 percent of the parish.

1. Olivier-Calhoun association

Level to very gently sloping, somewhat poorly drained and poorly drained, slowly permeable soils

This association consists of loamy soils on ridges and flats and in depressions (fig. 3). It is mainly in a continuous narrow belt that extends from the northwestern to the northeastern part of the parish. Natural drainage-

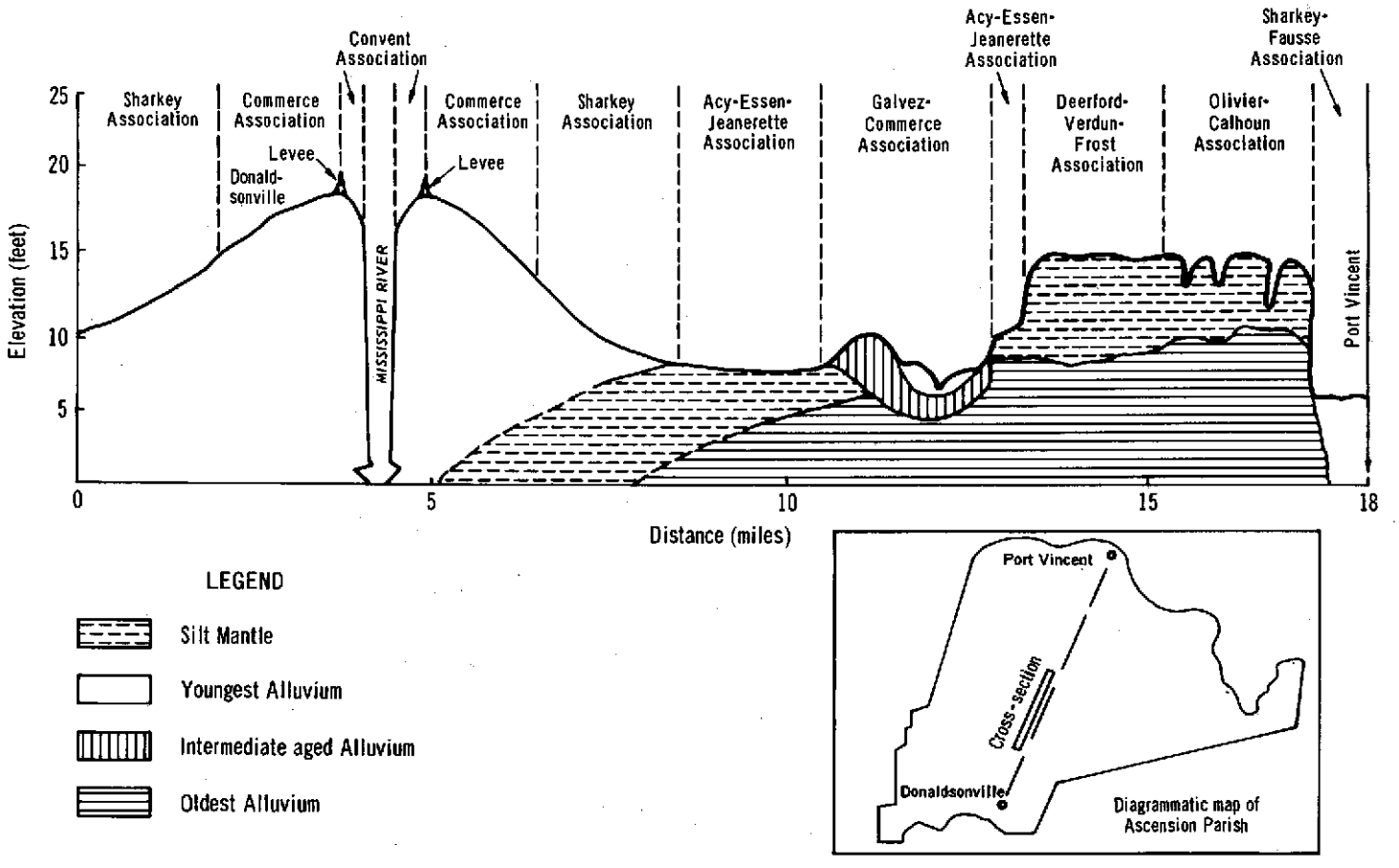

Figure 2.—**Relationship of the soil associations to elevation and parent material, shown by a cross section from Donaldsonville to Port Vincent.**

Figure 3.—**Typical landscape in the Olivier-Calhoun association.**

ways that drain mostly to the northeast into Bayou Manchac dissect the association. Slopes are dominantly 0 to 2 percent. The elevation ranges mainly from 15 to 30 feet above sea level.

This association makes up about 9 percent of the parish. About 45 percent of this is Olivier soils and 45 percent is Calhoun soils. The remaining 10 percent is Memphis, Deerford, and Frost soils.

Olivier soils are on ridgetops and side slopes. These soils are somewhat poorly drained and are slowly permeable. They have a surface layer of brown silt loam and a subsoil of yellowish-brown silt loam or silty clay loam. Below this is a fragipan of yellowish-brown silty clay loam that is mottled in shades of brown and gray.

Calhoun soils are in depressed areas and small drainageways. These soils are poorly drained and are slowly permeable. They have a surface layer of dark-brown silt loam and a subsurface layer of gray and light brownish-gray silt loam. The subsoil is light brownish-gray or gray silty clay loam that is mottled in shades of brown.

Memphis soils are on the short, steep escarpments in the northwestern part of the association adjacent to the alluvial plain along the Mississippi River. Deerford soils are on short, nearly level side slopes along some drainageways. Frost soils are in small areas in narrow drainageways.

Most of the acreage is used for crops, pasture, and woodland. The woodland is dominantly along drainageways and in depressed areas. Many of the farms are less than 50 acres in size. Most of the acreage adjacent to roads that traverse the association is used for residential sites.

Suitability of the soils of this association is fair for most of the crops and pasture plants commonly grown in the parish, but suitability for woodland is good. Calhoun soils are better suited to pasture and hay than to crops. Fertility of the soils is somewhat low. The main concern of management is seasonal wetness.

Many scattered tracts of this association are used for residential subdivisions, and the present trend is toward residential use. Suitability for this use is fair. Wetness, especially on the Calhoun soils, is the principal concern.

2. *Acy-Essen-Jeanerette association*

Level to nearly level, somewhat poorly drained, moderately slowly permeable and slowly permeable soils

This association consists of loamy soils on broad flats and in slight depressions. It is mainly in the south-central part of the parish. It is drained by numerous manmade ditches that divert water into bayous and canals. Slopes are dominantly 0 to 1 percent. The elevation ranges mainly from 8 to 15 feet above sea level.

The association makes up about 8 percent of the parish. About 40 percent of this is Acy soils, 30 percent is Essen soils, and about 20 percent is Jeanerette soils. The remaining 10 percent is minor soils.

Acy soils are on broad flats at an intermediate elevation. They are somewhat poorly drained and are moderately slowly permeable. They have a surface layer of dark-gray silt loam. The upper part of the subsoil is very

dark gray silty clay loam, and the lower part is light olive-brown silty clay loam. The subsoil has grayish-brown mottles.

Essen soils are at the highest elevation in the same areas as Acy soils. They are somewhat poorly drained and are moderately slowly permeable. They have a surface layer of dark grayish-brown silt loam. The subsoil is silty clay loam and is grayish brown in the upper part and light olive brown in the lower part. It is mottled in shades of brown and gray.

Jeanerette soils are in depressions. They are somewhat poorly drained and are slowly permeable. They have a surface layer of very dark gray silt loam. The subsoil is silty clay loam and is black in the upper part and dark grayish brown, grayish brown, or light olive brown in the lower part. The subsoil is mottled in shades of brown and gray.

Among the minor soils are the Calhoun, Foley, and Frost soils. Calhoun and Foley soils are in depressions. Frost soils are in the small drainageways. These soils are mainly northeast of Gonzales.

Most of the acreage is used for pasture and crops, but some is used for woodland and residential sites. Most of the acreage adjacent to many of the roads that traverse the association is used for residential sites. Most farms are small.

Suitability of the soils of this association is good for most crops and pasture plants commonly grown in the parish and for woodland. Fertility is medium. The main concern of management is seasonal wetness.

Small residential subdivisions are being developed throughout the area, and the present trend is toward residential use. Because these soils are wet and some of them lack drainage outlets, suitability for this use is fair to poor.

3. Deerford-Verdun-Frost association

Level to nearly level, somewhat poorly drained and poorly drained, slowly permeable and very slowly permeable soils

This association consists of loamy soils on broad flats and in slight depressions. It is mainly in the north-central part of the parish. Natural drainageways are broad, slightly depressed areas that have very little gradient. Manmade ditches are in most natural drainageways. Most surface water drains into the backswamps in the eastern part of the parish. Slopes are dominantly 0 to 1 percent. The elevation ranges mainly from 10 to 20 feet above sea level.

This association makes up about 9 percent of the parish. About 35 percent of this is Deerford soils, about 15 percent is Verdun soils, and about 10 percent is Frost soils. The remaining 40 percent is minor soils.

Deerford soils are on broad flats. They are somewhat poorly drained and are slowly permeable. They have a surface layer of brown silt loam and a subsoil of yellowish-brown and light olive-brown silty clay loam that is mottled in shades of brown and gray. The content of sodium in the lower part of the subsoil is high.

Verdun soils also are on broad flats, but they generally occur in more depressed areas. They are somewhat poorly drained and are very slowly permeable. They have a surface layer of grayish-brown silt loam. The subsoil is light olive-brown silty clay loam. It is underlain by yellowish-brown silt loam. The subsoil and underlying material are mottled in shades of brown and gray. The content of sodium is high throughout the subsoil.

Frost soils are in drainageways, level areas, and depressed areas. They are poorly drained and are slowly permeable. They have a surface layer of dark grayish-brown silt loam and a subsoil of dark-gray and gray silty clay loam that is mottled in shades of brown.

Among the minor soils are the Acy, Calhoun, Foley, Olivier, and Patoutville soils. Acy soils are in nearly level areas in the southern part of the association. Calhoun soils are in small areas in some depressions and drainageways. Foley soils are in depressions and occur mainly in the southeastern part of the association. Olivier and Patoutville soils occur in nearly level areas that have short slopes and are adjacent to drainageways.

Most of the acreage is in pasture and woodland, but a small acreage is used for crops or for residential sites. Residential sites occupy most of the areas adjacent to the roads that traverse the association. Most farms are small, and many are less than 40 acres in size.

The soils in this association are better suited to pasture and hay than to most other uses. Suitability for crops is poor, but suitability for woodland is good. Fertility is low. The main concerns of management are wetness in winter and spring on all the soils and droughtiness during dry periods in summer and fall on the Deerford and Verdun soils.

Small tracts of this association are being developed for residential subdivisions. The present trend is toward residential use. Suitability for this use is fair.

Loamy and Clayey Soils on Natural Levees

The three soil associations in this group consist of level or nearly level, loamy and clayey soils on natural levees on the alluvial plain of the Mississippi River. These soils formed in water-deposited sediment from the Mississippi River and its distributaries. Slopes range from 0 to 3 percent, but they are mainly less than 0.5 percent. A system of manmade levees protects most of the area from flooding by the Mississippi River. These associations make up about 41 percent of the parish.

The nearly level loamy soils occur in the highest areas, locally adjacent to the Mississippi River and its distributaries. Slope of natural levees is away from the stream channels. The level, clayey soils occur mainly on the lower part of the natural levees and at the greatest distance from stream channels. Some of the soils at the lower elevations are subject to flooding.

4. Commerce association

Nearly level, somewhat poorly drained, moderately slowly permeable soils

This association consists of loamy soils at some of the highest elevations on the natural levees of the Mississippi River and its distributaries. It occurs mainly in two bands adjacent to the Mississippi River. Natural drainageways are few, and the soils are drained by manmade ditches that divert water away from the river into the backswamp areas. Slopes are dominantly 0.5 to 1 percent. The slope is typically away from the river. The elevation ranges from about 15 feet to more than 20 feet above sea level.

This association makes up about 16 percent of the parish. About 65 percent of this is Commerce soils. The remaining 35 percent is minor soils.

Commerce soils are somewhat poorly drained and are moderately slowly permeable. They have a surface layer of dark grayish-brown silt loam or silty clay loam. The subsoil is grayish-brown, stratified silt loam and silty clay loam that is mottled in shades of brown and gray.

Among the minor soils are the Convent, Sharkey, and Vacherie soils. Convent soils are in the highest areas in the association, Sharkey soils typically are in the lowest areas, and Vacherie soils are in areas at the same elevation as the Commerce soils.

Most of the acreage is used for crops, mainly sugarcane and soybeans. A small acreage is used for pasture, woodland, and industrial or residential sites. Nearly all of the industrial development in the parish is in this association and is adjacent to the Mississippi River. The largest community in the parish, Donaldsonville, also is in this association. Many of the farms are large and are privately owned. Some large tracts of farmland adjacent to the Mississippi River are being developed for industrial sites.

Suitability of soils in this association for most crops, pasture plants, and woodland is excellent. These are some of the most productive farming soils in the parish. Fertility is high. The main concern of management is seasonal wetness. A surface drainage system is needed for the optimum production of most cultivated crops.

The present trend is toward industrial development. Most of the acreage has slight to moderate limitations for this use. Suitability for residential development is fair.

5. *Galvez-Commerce association*

Level to nearly level, somewhat poorly drained, moderately slowly permeable soils

This association consists of loamy soils in a narrow band along Bayou Manchac and New River and their distributaries. It is drained by natural drainageways and manmade ditches. Most surface water flows into New River and Bayou Manchac. Slopes are mainly 0 to 1 percent. The elevation ranges from 10 to 20 feet above sea level in most places, but in some areas, mainly in the southeastern part of the parish, it is slightly less than 10 feet above sea level.

This association makes up about 9 percent of the parish. About 45 percent of this is Galvez soils, and about 35 percent is Commerce soils. The remaining 20 percent is minor soils.

Galvez soils are somewhat poorly drained and are moderately slowly permeable. They are in the higher and intermediate areas of the association. They have a surface layer of dark grayish-brown silt loam or silty clay loam. The subsoil is grayish-brown silty clay loam mottled in shades of brown.

Commerce soils are somewhat poorly drained and are moderately slowly permeable. They are in areas at about the same elevation as Galvez soils but, typically, are adjacent to stream channels. They have a surface layer of dark grayish-brown silt loam or silty clay loam. The subsoil is grayish-brown, stratified silt loam and silty clay loam mottled in shades of brown and gray.

Among the minor soils in this association are the Convent and Sharkey soils. Convent soils are in the same positions as Commerce soils, and Sharkey soils, typically are in low depressions.

Most of the acreage is used for pasture, cropland, woodland, or residential sites. The woodland is mainly in low areas and depressions. Gonzales, the second largest community in the parish, is mainly in this association. Most farms are small. Residential sites occupy most of the areas adjacent to the roads that traverse the association.

Suitability of soils in this association for most cultivated crops, pasture plants, and woodland is good. Fertility is medium to high. The main concern of management is seasonal wetness. A surface drainage system is needed for the optimum production of most cultivated crops.

Small tracts of this association are being developed for residential subdivisions. The present trend is toward residential use, and suitability for this use is fair. Wetness is the principal concern.

6. *Sharkey association*

Level, poorly drained, very slowly permeable soils

This association consists of clayey soils in areas that are at a moderately low or intermediate elevation on natural levees of the Mississippi River and its distributaries. It is mainly in the southwestern part of the parish. Natural drainageways are few, and the soils are drained mainly by manmade ditches and canals that divert water into the backswamps. Slopes are dominantly less than 0.5 percent. The elevation ranges from 5 to 15 feet above sea level.

This association makes up about 16 percent of the parish. About 85 percent of this is Sharkey soils. The remaining 15 percent is minor soils.

Sharkey soils are poorly drained and are very slowly permeable. They have a surface layer of very dark grayish-brown clay or dark grayish-brown silty clay loam. The subsoil is dark-gray or gray clay mottled in shades of brown.

Among the minor soils in this association are the Commerce and Tunica soils. Commerce soils, typically, are in the highest areas, and Tunica soils are in areas at the same elevation as Sharkey soils.

Almost all of the acreage is used for crops and pasture. The principal crops are sugarcane and soybeans. A small acreage is in woodland. Most farms are large and privately owned.

Suitability of the association for pasture plants and woodland is good. This association is not quite so well suited to crops. Fertility is high. The main management concerns are wetness and difficulty in working the soil. A surface drainage system is needed for the production of most crops and pasture plants.

Several large tracts of this association near the river are being developed as industrial sites. Wetness, poor trafficability, high plasticity, and very high shrink-swell potential restrict the use of the association for urban, industrial, and recreational developments. Suitability for residential use is poor.

Loamy and Clayey Soils on the Alluvial Plain

The three associations in this group consist of very poorly drained to poorly drained, clayey soils in the backswamps and somewhat poorly drained, unprotected, loamy soils on the natural levee of the alluvial plain along the Mississippi River. These associations are subject to flooding. Slopes are less than 0.25 percent

for the clayey soils and less than 3 percent for the loamy, unprotected soils. These associations make up about 33 percent of the parish.

Most of the clayey soils of the backswamps are almost continuously flooded. The soils of the backswamps in the southeastern part of the parish are semifluid throughout and have many buried logs and stumps. Many of the soils in this area have an organic surface layer as much as 8 inches thick.

The somewhat poorly drained, unprotected loamy soils on the natural levee of the alluvial plain along the Mississippi River are between the river and the manmade system of levees that protects the soils from flooding. These soils are subject to frequent flooding, scouring, and deposition.

7. *Convent association*

Gently undulating, somewhat poorly drained, frequently flooded soils

This association consists of loamy soils in a narrow band on each side of the Mississippi River, between the river and the flood protection levees. Scouring and deposition by floodwater have resulted in a series of narrow ridges and swales, but there is no defined drainage pattern. Slopes of the ridges are dominantly less than 3 percent.

This association makes up about 2 percent of the parish. About 80 percent of this is Convent soils. The remaining 20 percent is minor soils.

Convent soils are on ridges. They are somewhat poorly drained and are moderately permeable. They have a surface layer of dark grayish-brown silt loam. The subsoil is grayish-brown very fine sandy loam mottled in shades of brown.

Among the minor soils are the Commerce, Sharkey, and Tunica soils. Commerce soils are on ridges. Sharkey and Tunica soils, typically, are in depressions.

Most of the acreage is in woodland and pasture. Many small areas are used as a source of borrow material.

Because of frequent flooding, scouring, and deposition, the soils of this association have severe limitations for most uses. Suitability for residential use or crops is very poor. Suitability for woodland is excellent; some areas, however, have severe equipment limitations and a high rate of seedling mortality because of flooding.

8. *Sharkey-Fausse association*

Level, poorly drained and very poorly drained, frequently flooded soils

This association consists of frequently flooded to nearly continuously flooded, clayey soils. These soils are in low, depressed areas, mainly in the northwestern, south-central, and northeastern parts of the parish. There is no defined drainage pattern. The elevation mainly is 1 foot to 5 feet above sea level in most places, but in some areas in the northwestern part of the parish, it is as much as 10 feet.

This association makes up about 12 percent of the parish. About 50 percent of this is Sharkey soils and about 40 percent is Fausse soils. The remaining 10 percent is minor soils.

Sharkey soils are poorly drained and are very slowly permeable. They are in the highest areas in the association. They are frequently flooded, but less often and for shorter duration than Fausse soils are flooded. They have a surface layer of very dark grayish-brown clay. The subsoil is dark-gray clay mottled in shades of gray and brown.

Fausse soils are very poorly drained and are very slowly permeable. They are in the lowest positions in the association. They are nearly continuously flooded, except during dry periods in summer and fall. They have a surface layer of dark-gray clay and a subsoil of gray clay that has brownish mottles.

Among the minor soils are the Barbary and Galvez soils. Barbary soils are in small depressions. Galvez soils are on natural levees along old stream channels and in low terrace areas adjoining the swamp.

Almost all the acreage is in woodland. Most of the association is used to some extent for hunting, crawfishing, and trapping. Most landholdings are large tracts.

Because of flooding this association is very poorly suited to the economic production of cultivated crops or pasture plants. Suitability for woodland is fair. Flooding, high shrink-swell potential, high plasticity, poor trafficability, and wetness limit the use of the soils for urban, industrial, and recreational purposes. Suitability for these uses is very poor.

9. *Barbary association*

Level, very poorly drained, nearly continuously flooded soils

This association consists of clayey soils in the swamp in the southeastern part of the parish. No defined drainage pattern occurs. The elevation ranges from 1 to 4 feet above sea level.

This association makes up about 19 percent of the parish. About 85 percent of this is Barbary soils, and the remaining 15 percent is mainly Fausse and Sharkey soils.

Barbary soils are very slowly permeable and are covered with water most of the year. They have a thin surface layer of very dark gray and grayish-brown muck that overlies semifluid, dark-gray mucky clay and clay about 8 inches thick. This is underlain by semifluid, greenish-gray clay.

Fausse and Sharkey soils are at the highest elevations in the association and typically adjoin old stream channels.

Nearly all of the acreage is woodland made up of water tupelo, baldcypress, and water maple. Some of the association is used sparingly for hunting and crawfishing. Some small areas are used for oilfields. Most landholdings are large in size.

This association is generally not suited to cultivated crops and pasture plants, because of flooding. Suitability for woodland is poor. Poor trafficability, high shrink-swell potential, and buried logs and stumps severely limit the use of this association for urban, industrial, and recreation development; and suitability for these uses is very poor.

Descriptions of the Soils

In this section the soils of Ascension Parish are described in detail, and their use and management are discussed. Each soil series is described in detail, and then, briefly, the mapping units in that series. Unless it is specifically mentioned otherwise, it is to be assumed that what is stated about the soil series holds true for the mapping units in that series. Thus, to get full information about any one mapping unit, it is necessary to read both the

description of the mapping unit and the description of the soil series to which it belongs.

An important part of the description of each soil series is the soil profile, that is, the sequence of layers from the surface downward to underlying material. Each series contains two descriptions of this profile. The first is brief and in terms familiar to the layman. The second is much more detailed and is for those who need to make thorough and precise studies of soils. Unless otherwise stated, colors are for moist soil. The profile described in the soil series is representative for mapping units in that series. If a given mapping unit has a profile in some ways different from the one described in the series, these differences are stated in the description of the mapping unit, or they are apparent in the name of the mapping unit. The description of each mapping unit contains suggestions on how the soil can be managed.

Following the name of each mapping unit is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of each description of a mapping unit is the capability unit and woodland group in which the mapping unit has been placed. The page for the description of each mapping unit can be learned by referring to the "Guide to Mapping Units" at the back of this survey.

The acreage and proportionate extent of each mapping unit are shown in table 1. Many of the terms used in describing soils can be found in the Glossary, and more detailed information about the terminology and methods of soil mapping can be obtained from the Soil Survey Manual (*7*).

The boundaries of the soils of this survey are joined with the soils of the soil surveys of East Baton Rouge Parish and St. James and St. John the Baptist Parishes. Differences in the name of the soils are because of limited acreage or changes in the classification system.

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

Mapping unit	Area	Extent
	Acres	*Percent*
Acy silt loam	8, 110	4. 2
Barbary association	31, 770	16. 6
Calhoun silt loam	10, 150	5. 3
Commerce silt loam	16, 780	8. 7
Commerce silty clay loam	10, 950	5. 7
Convent silt loam	2, 585	1. 4
Convent soils, frequently flooded	3, 895	2. 0
Deerford-Patoutville complex	3, 840	2. 0
Deerford-Verdun complex	8, 965	4. 7
Essen silt loam	4, 975	2. 6
Fausse association	6, 960	3. 6
Fausse-Galvez association	4, 380	2. 3
Foley-Deerford complex	2, 745	1. 4
Frost silt loam	2, 530	1. 3
Galvez silt loam	6, 080	3. 2
Galvez silty clay loam	2, 175	1. 1
Jeanerette silt loam	3, 505	1. 8
Memphis complex, 5 to 30 percent slopes	495	. 3
Olivier silt loam	8, 455	4. 4
Sharkey silty clay loam	9, 985	5. 2
Sharkey clay	26, 685	13. 9
Sharkey clay, frequently flooded	14, 345	7. 5
Tunica clay	830	. 4
Vacherie silt loam	810	. 4
Total land area	192, 000	100. 0
Large water areas	5, 120	
Total	197, 120	100. 0

Acy Series

The Acy series consists of somewhat poorly drained, moderately slowly permeable soils that are loamy throughout and have a very low content of sand. These soils formed in more than 4 feet of loesslike material. They are on terrace uplands in the central part of the parish.

In a representative profile the surface layer is dark-gray silt loam about 6 inches thick. The upper 7 inches of the subsoil is very dark gray silty clay loam, and the lower 28 inches is light olive-brown silty clay loam that has grayish-brown mottles. The underlying material is yellowish-brown and grayish-brown silt loam.

Most of the acreage is used for pasture and crops. A small acreage is used for woodland and residential sites.

Representative profile of Acy silt loam, in an idle field 2.2 miles west of Brittany, 325 feet north of State Highway 30, in SW¼SE¼SW¼ sec. 33, T. 9 S., R. 3 E.

Ap—0 to 6 inches, dark-gray (10YR 4/1) silt loam; few, fine, distinct, dark yellowish-brown mottles; weak, fine, subangular blocky structure; friable; mildly alkaline; abrupt, wavy boundary.

B21t—6 to 13 inches, very dark gray (10YR 3/1) silty clay loam; moderate, mediu n, subangular blocky structure; slightly firm; thin, discontinuous, black clay films; few, fine, soft, black and brown iron-manganese nodules; mildly alkaline; clear, smooth boundary.

B22tca—13 to 30 inches, light olive-brown (2.5Y 5/4) silty clay loam; common, fine, distinct, grayish-brown mottles; weak, medium, prismatic structure parting to moderate, medium, subangular blocky; firm; thick, continuous, dark-gray (10YR 4/1) clay films on faces of peds; about 10 percent calcium carbonate concretions, as much as 7.5 centimeters in diameter; few, fine, black iron-manganese concretions; moderately alkaline; gradual, smooth boundary.

B3t—30 to 41 inches, light olive-brown (2.5Y 5/4) silty clay loam; common, medium, distinct, grayish-brown (2.5Y 5/2) mottles; moderate, coarse, subangular blocky structure; slightly firm; thin, patchy, dark-gray clay films on faces of peds; few fine calcium carbonate concretions; few, fine, black iron-manganese concretions; moderately alkaline; gradual, smooth boundary.

C1—41 to 52 inches, yellowish-brown (10YR 5/6) and grayish-brown (2.5Y 5/2) silt loam; massive; friable; few fine calcium carbonate concretions; few, fine, black iron-manganese concretions; moderately alkaline; clear, smooth boundary.

C2—52 to 65 inches, yellowish-brown (10YR 5/6) and grayish-brown (2.5Y 5/2) silt loam; massive; friable; few, fine, black iron-manganese concretions; moderately alkaline.

The A horizon is dark grayish brown, grayish brown, gray, or dark gray. It is strongly acid through mildly alkaline. The B21t horizon is very dark gray, dark gray, black, very dark grayish brown, or dark grayish brown and is mottled in shades of brown and gray. Ped coatings in this horizon are black or very dark gray. This horizon is silt loam or silty clay loam, and it is slightly acid through moderately alkaline. The B22tca and B3t horizons are light olive-brown or yellowish-brown silty clay loam or silt loam that is mottled in shades of gray. These horizons are neutral through moderately alkaline. The B22tca horizon contains 1 to 20 percent calcium carbonate concretions as much as 7.5 centimeters in diameter. The C horizon is silt loam or silty clay loam, and it is mildly alkaline or moderately alkaline.

Acy soils are associated with Essen, Foley, Jeanerette, and Verdun soils. They have very dark gray or black ped coatings in the B horizon, and Essen soils do not. They lack a high

sodium saturation, which Foley and Verdun soils have. They lack a dark-colored surface layer, which is characteristic of Jeanerette soils.

Acy silt loam (Ac).—This somewhat poorly drained soil is on terraces on uplands. It is loamy throughout, and the content of sand is very low. The areas range from 50 to 400 acres in size. Slopes are 0 to 1 percent. Included in mapping are small areas of Essen and Jeanerette soils.

Natural fertility is medium. Runoff is slow. Plant roots penetrate easily. Water and air moves somewhat slowly through the soil. If not adequately drained, this soil has a seasonal high water table at a depth of 1.5 to 3.0 feet from December through April.

Most of the acreage is used for pasture and crops. A small acreage is used for woodland and residential sites.

This soil is suited to most of the crops and pasture plants commonly grown in the parish. Suitable crops are corn, oats, soybeans, and truck crops. Suitable pasture plants are common bermudagrass, Coastal bermudagrass, millet, carpetgrass, dallisgrass, ryegrass, white clover, Pensacola bahiagrass, and southern wild winter peas.

This soil is friable and fairly easy to keep in good tilth, but the surface layer is likely to crust if it is clean tilled. Tilth can be improved and crusting can be reduced by plowing under crop residue and green manure crops. Surface drainage is needed for crops and pasture. Land smoothing improves surface drainage and increases the efficiency of farm equipment. Crop response to fertilizer is fairly good, but lime generally is not needed. For most uses the main limitation is moderate wetness. Capability unit IIw-6; woodland group 2w5.

Barbary Series

The Barbary series consists of very poorly drained, very slowly permeable soils. These soils formed in muck underlain by clayey sediment in low backswamp areas on the alluvial plain.

In a representative profile the surface layer is overlain by about 5 inches of very dark grayish-brown muck. The surface layer is semifluid, dark-gray mucky clay and clay about 8 inches thick. The underlying material is semifluid, greenish-gray and dark greenish-gray clay. Buried logs and stumps are typical.

Most of the acreage is used for woodland.

Representative profile of Barbary muck, in an area of the Barbary association, in a swamp 1.3 miles southwest of the intersection of U.S. Highway 61 and Interstate 10, 200 feet north of gravel road, in SE¼SE¼SE¼ sec. 29, T. 10 S., R. 4 E.

02—5 inches to 0, very dark grayish-brown (10YR 3/2) muck; massive; nonplastic and nonsticky; common wood fragments and partly decomposed leaves: slightly acid; gradual, smooth boundary.
A11g—0 to 4 inches, dark-gray (5Y 4/1), semifluid mucky clay; massive; flows easily between fingers when squeezed; about 15 percent organic matter; neutral; clear, smooth boundary.
A12g—4 to 8 inches, dark-gray (5Y 4/1) semifluid clay; massive; flows easily between fingers when squeezed; neutral; clear, smooth boundary.
C1g—8 to 42 inches, greenish-gray (5GY 5/1), semifluid clay; massive; flows easily between fingers when squeezed; common, coarse, partly decomposed wood fragments; mildly alkaline.
C2g—42 to 57 inches, dark greenish-gray (5GY 4/1), semifluid clay; massive; flows easily between fingers when squeezed; a mat of logs, mildly alkaline.
C3g—57 to 72 inches, greenish-gray (5GY 5/1), semifluid clay; massive; flows easily between fingers when squeezed; common, coarse wood fragments; mildly alkaline.

The 02 horizon is dark gray, very dark gray, very dark grayish brown, or black and ranges from 2 to 8 inches in thickness. It is slightly acid through mildly alkaline. The A horizon is dark-gray, very dark gray, dark grayish-brown, or grayish-brown, semifluid mucky clay or clay. It ranges from 2 to 10 inches in thickness. It is neutral or mildly alkaline. The C horizon is gray, dark-gray, dark greenish-gray, or greenish-gray, semifluid clay or mucky clay. It is neutral through moderately alkaline. Most horizons contain some woody fragments, and most profiles contain buried logs and stumps. Woody organic layers occur in some places at a depth below 40 inches.

Barbary soils are associated with Sharkey and Fausse soils. The surface layer of Barbary soils does not form cracks, as does that of Sharkey soils. Barbary soils do not have the firm B and C horizons that are characteristic of Fausse and Sharkey soils.

Barbary association (BA).—This mapping unit consists of very poorly drained soils that are flooded nearly continuously. Most of it occurs in one large tract of about 30,000 acres in the depressed backswamp area on the alluvial plain. Slopes are less than 0.2 percent.

The composition of this mapping unit is more variable than that of most other units in the parish but has been controlled well enough to allow interpretation for the expected use of the soils.

About 90 percent of the association is Barbary soils, and most of the remaining 10 percent is Fausse and Sharkey soils. Barbary soils are in low, broad depressions. Fausse and Sharkey soils are on low, convex ridges at a slightly higher elevation.

Natural fertility is high. Several inches of water stands on the surface most of the year, and the soils are flooded with as much as 2 feet of water throughout winter and spring. The soils are continuously saturated in dry periods in summer and fall. They are semifluid to a depth of more than 40 inches.

The semifluid nature of the soil layers and the presence of logs and stumps restrict use of these soils as construction sites. Other factors affecting use as construction sites are very high shrink-swell potential, flooding and severe wetness. If the soils are drained, they consolidate and shrink as they dry. They form deep, wide cracks that do not close on rewetting.

Most of this association is in forest of baldcypress and water tupelo.

Soils of the association are generally not suited to cultivated crops and pasture plants, because they are flooded nearly continuously. To make the soils suitable for only limited production of crops or pasture, costly reclamation is required that includes an adequate system of levees, drainage ditches, and pumps to remove excess water. Capability unit VIIw-1; woodland group 4w6.

Calhoun Series

The Calhoun series consists of poorly drained, slowly permeable soils that are loamy throughout and have a very low content of sand. These soils formed in more than 4 feet of loesslike material. They are in depressed areas on terrace uplands in the northern part of the parish.

In a representative profile the surface layer is dark-brown silt loam about 4 inches thick, and the subsurface layer is grayish silt loam about 15 inches thick. The subsoil, extending to a depth of 51 inches, is grayish silty clay loam mottled in shades of brown. The underlying material is gray and yellowish-brown silt loam.

Most of the acreage is in pasture. A small acreage is used for cultivated crops, woodland, or residential sites.

Representative profile of Calhoun silt loam, in a pasture 0.4 mile west of State Highway 928 on Bayou Manchac Road, 225 feet northeast of road, in north-central part of Spanish Land Grant, sec. 14, T. 8 S., R. 2 E.

A1–0 to 4 inches, dark-brown (10YR 4/3) silt loam; moderate, fine, granular structure; friable, few, fine, black iron-manganese concretions; medium acid; clear, smooth boundary.

A21g—4 to 12 inches, gray (10YR 6/1) silt loam; common, fine, distinct, dark yellowish-brown mottles; massive; friable; few, fine, black iron-manganese concretions; medium acid; clear, wavy boundary.

A22g—12 to 19 inches, light brownish-gray (10YR 6/2) and light-gray (10YR 7/1) silt loam; common, fine, faint, yellowish-brown mottles; massive; friable; few, fine, black iron-manganese concretions, very strongly acid; abrupt, irregular boundary.

B21tg—19 to 28 inches, light brownish-gray (10YR 6/2) silty clay loam; common, medium, distinct, dark-brown (7.5YR 4/4) mottles; moderate, coarse, subangular blocky structure; firm; thin light-gray silt coatings in pores and on faces of some peds; silt tongues, ½ inch to 1½ inches wide, extend through horizon; thin patchy clay films; few, fine, brown iron-manganese concretions; very strongly acid; clear, wavy boundary.

B22tg—28 to 39 inches, gray (10YR 5/1) silty clay loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm; thin discontinuous clay films; few, fine, brown iron-manganese concretions; strongly acid; gradual, wavy boundary.

B3g—39 to 51 inches, light brownish-gray (2.5Y 6/2) silty clay loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, coarse, subangular blocky structure; firm; few, thin, patchy clay films; few, fine, brown and black iron-manganese concretions; strongly acid; gradual, wavy boundary.

C1g—51 to 64 inches, gray (10YR 6/1) silt loam; many, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; firm; few, fine, brown and black iron-manganese concretions; strongly acid; gradual, smooth boundary.

C2—64 to 75 inches, yellowish-brown (10YR 5/6) and gray (10YR 6/1) silt loam; massive; firm; few, fine, black iron-manganese concretions; strongly acid.

The A1 or Ap horizon is dark gray, dark grayish brown, gray, grayish brown, dark brown, or light brownish gray. The A2 horizon is gray, grayish brown, light gray, or light brownish gray. The A horizon ranges from about 12 to 22 inches in thickness. The B horizon ranges from gray to light brownish gray, and it is mottled in shades of brown and gray. It ranges from 18 to 40 inches in thickness. The C horizon is gray or light grayish brown, and it is mottled in shades of gray and brown. The A1 or Ap horizon is medium acid through very strongly acid; the A2 horizon and the Bt horizon are strongly acid or very strongly acid; and the C horizon is very strongly acid through neutral.

Calhoun soils are associated with Olivier, Verdun, Deerford, Foley, and Frost soils. They are more poorly drained and have a grayer B horizon than Olivier soils, and they lack a fragipan, which Olivier soils have. Calhoun soils are more poorly drained, are more acid, and have a grayer B horizon than Verdun and Deerford soils. They are more acid than Foley soils. They lack dark-colored coatings on peds in the B horizon, but Frost soils have them.

Calhoun silt loam (Ca).—This poorly drained soil is in depressions in terrace uplands. It is loamy throughout, and the content of sand is very low. The areas range from 20 to 200 acres in size. Slopes are less than 1 percent. Included in mapping are small areas of Frost, Foley, and Verdun soils.

Natural fertility is somewhat low. Runoff is slow. Water moves slowly through the subsoil. This soil has a seasonal high water table perched at a depth within 2 feet of the surface from December through April. It dries out more slowly than most surrounding soils. Wetness causes poor aeration and restricts plant root development. Water stands in depressions for short periods after a heavy rain. The surface layer is subject to liquefaction and piping if this soil is used as construction material.

Most of the acreage is used for pasture. A small acreage is used for cultivated crops, woodland, or residential sites.

This soil is suited to many crops and pasture plants commonly grown in the parish, but planting may be delayed and yields are reduced unless adequate surface drainage is provided. Suitable crops are corn, soybeans, sweetpotatoes, and rice. Suitable pasture plants are common bermuda-grass, Pensacola bahiagrass, tall fescue, ryegrass, millet, white clover, and southern wild winter peas.

It is somewhat difficult to keep this soil in good tilth and to keep the surface from crusting. Tilth can be improved and surface crusting can be reduced by plowing under crop residue and green manure crops. Surface drainage is needed for cultivated crops and pasture. Land smoothing and leveling improve surface drainage and increase the efficiency of farm equipment. Crop response to fertilizer is fairly good, and lime generally is needed. For most uses the main limitation is severe wetness. Capability unit IIIw–3; woodland group 2w9.

Commerce Series

The Commerce series consists of somewhat poorly drained, moderately slowly permeable soils that formed in loamy sediment on the natural levees on the alluvial plain.

In a representative profile the surface layer is dark grayish-brown silt loam about 10 inches thick. The subsoil is 28 inches thick. The upper part of the subsoil is grayish-brown silty clay loam, and the lower part is grayish-brown silt loam that has dark-brown and dark yellowish-brown mottles. The underlying material is gray silty clay loam and silt loam that has thin strata of silty clay.

Most of the acreage is used for crops. A small acreage is used for pasture, woodland, or industrial and residential sites.

Representative profile of Commerce silt loam, in a field of sugarcane 0.8 mile southwest of McCall, 0.2 mile south of State Highway 943, in the north-central part of Spanish Land Grant, sec. 16, T. 11 S., R. 14 E.

Ap1—0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam; weak, very fine, granular structure; friable; slightly acid; abrupt, smooth boundary.

Ap2—6 to 10 inches, dark grayish-brown (10YR 4/2) silt loam; common, fine distinct, dark-brown mottles; weak, thick, platy structure; firm; medium acid; abrupt, smooth boundary.

B2—10 to 30 inches, grayish-brown (10YR 5/2) silty clay loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; friable to firm; neutral; clear, smooth boundary.

B3—30 to 38 inches, grayish-brown (10YR 5/2) silt loam; common, fine, distinct, dark yellowish-brown mottles; weak, medium, subangular blocky structure; friable; few, fine, dark-brown iron-manganese concretions; neutral; clear, smooth boundary.

C1g—38 to 50 inches, gray (10YR 5/1) silty clay loam; common, coarse, faint, dark-gray mottles and common, medium, distinct, dark yellowish-brown mottles; weak, coarse, subangular blocky structure; firm; few, dark-brown iron-manganese concretions; mildly alkaline; clear, smooth boundary.

C2g—50 to 65 inches, gray (10YR 5/1) and dark yellowish-brown (10YR 4/4) silty clay; massive; plastic; few, fine, dark-brown iron-manganese concretions; mildly alkaline; abrupt, smooth boundary.

C3g—65 to 75 inches, gray (10YR 5/1), stratified silty clay loam; thin bands of grayish-brown and dark yellowish-brown very fine sandy loam; mildly alkaline.

The A horizon is grayish brown, dark gray, or dark grayish brown. It is silt loam or silty clay loam and ranges from 6 to 14 inches in thickness. The B horizon is dark grayish brown or grayish brown in the upper part and gray in the lower part. It has mottles in shades of brown. It is silty clay loam or stratified silt loam and silty clay loam. Lenses of clay as much as 5 inches thick occur in the B horizon in some places. The C horizon is dominantly gray but ranges to grayish brown. It is stratified silt loam, silty clay, silty clay loam, or very fine sandy loam. In some places, clay layers occur below the B horizon. The A horizon ranges from medium acid through mildly alkaline; the upper part of the B horizon ranges from slightly acid through moderately alkaline; and the lower part of the B horizon and the C horizon range from neutral through moderately alkaline.

Commerce soils are associated with Convent, Galvez, Sharkey, and Vacherie soils. They contain more clay and have a more strongly developed profile than Convent soils. They have a less strongly developed profile than Galvez soils. They contain less clay and are better drained than Sharkey soils. They contain less clay in the lower horizons than Vacherie soils.

Commerce silt loam (Cm).—This somewhat poorly drained, loamy soil is on natural levees on the alluvial plain. It has the profile described as representative of the series. The areas range from 10 to 1,200 acres in size, and most of them are several hundred acres. Slopes are 0 to 1 percent. Included in mapping are small areas of Convent and Vacherie soils.

Natural fertility is high. Runoff is medium to slow. Plant roots penetrate easily. Water and air move somewhat slowly through this soil. If not adequately drained, this soil has a seasonal high water table at a depth of 1½ to 3 feet from December through April. Water stands in depressions for short periods after heavy rain, mainly in winter and spring.

Most of the acreage is used for sugarcane and soybeans.

The soil is well suited to most cultivated crops and pasture plants commonly grown in the parish. Suitable crops are corn, oats, truck crops, sugarcane, and soybeans. Suitable pasture plants are common bermudagrass, dallisgrass, Pensacola bahiagrass, johnsongrass, white clover, and southern wild winter peas.

This soil is friable and easy to keep in good tilth. Traffic pans form easily but can be broken by chiseling or deep plowing. A surface drainage system is needed for optimum production of most cultivated crops. Land smoothing and leveling improve surface drainage and increase the efficiency of farm equipment. Crop response to nitrogen fertilizer is good, but lime and other fertilizers generally are not needed. For most uses the main limitation is moderate wetness. Capability uint IIw-1; woodland group 1w5.

Commerce silty clay loam (Co).—This somewhat poorly drained loamy soil is on natural levees on the alluvial plain. It has a profile similar to the one described as representative of the series, but the surface layer is silty clay loam. The areas range from 10 to 400 acres in size. Slopes are 0 to 1 percent. Included in mapping are small areas of Commerce silt loam and Sharkey and Tunica soils.

Natural fertility is high. Runoff is slow. Plant roots penetrate fairly easily. If not adequatly drained, this soil has a seasonal high water table at a depth of 1.5 to 3.0 feet from December through April. It dries out more slowly than most surrounding soils. Water stands in depressions and in lower, level areas for short periods after heavy rain.

Most of the acreage is used for sugar cane and soybeans.

This soil is well suited to most cultivated crops and pasture plants commonly grown in the parish. Among the suitable crops are corn, truck crops, and most varieties of sugarcane and soybeans. Among the suitable pasture plants are bermudagrass, Pensacola bahiagrass, dallisgrass, johnson grass, tall fescue, ryegrass, white clover, and southern wild winter peas.

Because the surface layer is silty clay loam, good tilth is somewhat difficult to maintain. The moderately high content of clay in the surface layer restricts the use of farm equipment during wet periods. Drainage is needed to remove excess surface water in areas of crops or pasture. Land smoothing and leveling improve surface drainage and increase the efficiency of farm equipment. Crop response to nitrogen fertilizer is good, but lime and other fertilizers generally are not needed. For most uses the main limitation is moderate wetness. Capability unit IIw-3; woodland group 1w5.

Convent Series

The Convent series consists of somewhat poorly drained, moderately permeable soils. These soils formed in loamy sediment on the natural levees on the alluvial plain.

In a representative profile the surface layer is dark grayish-brown silt loam about 14 inches thick. The underlying material, to a depth of more than 50 inches, is grayish-brown and gray very fine sandy loam mottled in shades of brown.

About half the acreage is used for crops, mainly sugarcane and soybeans. The rest is in woodland and pasture.

Representative profile of Convent silt loam, in a field of soybeans 650 feet northeast of State Highway 44, 325 feet west of Orange Plantation Road, in the southwestern part of Spanish Land Grant, sec. 7, T. 10 S., R. 3 E.

Ap1—0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam; weak, medium, subangular blocky structure parting to weak, fine, granular; friable; slightly acid; abrupt, smooth boundary.

Ap2—6 to 14 inches, dark grayish-brown (10YR 4/2) silt loam; few, fine, distinct, dark yellowish-brown mottles; weak, medium, platy structure; friable; slightly acid; abrupt, smooth boundary.

C1—14 to 26 inches, grayish-brown (10YR 5/2) very fine sandy loam; few, medium, distinct, yellowish-brown (10YR 5/6) mottles and few, fine, distinct, dark yellowish-brown mottles; weak, thick, platy structure; very friable; faint bedding planes; mildly alkaline; abrupt, smooth boundary.

C2—26 to 36 inches, grayish-brown (10YR 5/2) very fine sandy loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, thick, platy structure; friable; faint bedding planes; several, ½-inch bands of silt loam; mildly alkaline; abrupt, smooth boundary.

C3—36 to 54 inches, grayish-brown (10YR 5/2) very fine sandy loam; many, medium, distinct, strong-brown (7.5YR 4/4) mottles; weak, thick, platy structure; very friable; thin, faint, bedding planes; few ¼-inch bands of silt loam; moderately alkaline; abrupt, smooth boundary.

C4g—54 to 76 inches, gray (10YR 5/1) very fine sandy loam; many, coarse, distinct, dark-brown (7.5YR 4/4) mottles; structureless; few very faint bedding planes; moderately alkaline.

The A1 or Ap horizon is dark grayish brown or dark brown. The A horizon ranges from 6 to 16 inches in thickness. It is silt loam or very fine sandy loam. It ranges from medium acid through mildly alkaline. In the upper part, the C horizon is grayish-brown or dark grayish-brown, stratified silt loam or very fine sandy loam, but below a depth of 40 inches, it is grayish-brown, dark grayish-brown, or gray silt loam or very fine sandy loam. This horizon is mottled in shades of brown. The weighted average of clay content in the C horizon is 10 to 18 percent. The upper part of the C horizon ranges from slightly acid through moderately alkaline, and the lower part ranges from neutral through moderately alkaline. In some places, a buried horizon is 40 inches or more below the surface.

Convent soils are associated with Commerce and Vacherie soils. They have less clay and have a less well developed profile than Commerce soils. Convent soils have less clay in the lower part of the profile than Vacherie soils.

Convent silt loam (Cs).—This somewhat poorly drained soil is loamy throughout. It is on natural levees of the alluvial plain. It has the profile described as representative of the series. The areas range from 10 to 400 acres in size. Slopes are 0 to 1 percent. Included in mapping are small areas of Commerce and Vacherie soils.

Natural fertility is high. Runoff is slow to medium. Plant roots penetrate easily, and permeability is moderate. If not adequately drained, this soil has a seasonal high water table at a depth of 1.5 to 3.0 feet from December through April. Water stands in depressions for short periods after heavy rain.

Most of the acreage is used for sugarcane and soybeans. This soil is well suited to most cultivated crops and pasture plants commonly grown in the parish. Suitable crops are corn, oats, truck crops, sugarcane and soybeans. Suitable pasture plants are common bermudagrass, dallisgrass, Pensacola bahiagrass, johnsongrass, and white clover.

This soil is friable and easy to keep in good tilth, but the surface layer is likely to erode and wash into the middle of the rows during heavy rain if this soil is clean tilled. In places young row crops are damaged when rain washes the surface soil away from their roots. Traffic pans form easily if the soil is cultivated, but they can be broken by chiseling or deep plowing. A drainage system is needed in some areas to remove excess surface water. Land smoothing improves surface drainage and increases the efficiency of farm equipment. Crop response to nitrogen fertilizer is good, but lime and other fertilizers generally are not needed. For most uses, the main limitation is moderate wetness. Capability unit IIw–1; woodland group 1w5.

Convent soils, frequently flooded (CV).—Areas of this mapping unit are on natural levees on the alluvial plain. They are in two narrow tracts about 20 miles long on both sides of the Mississippi River between the river and the protection levees. These soils are silt loam or very fine sandy loam, or a combination of the two. They have a profile similar to the one described as representative of the series, but the surface layer is about 8 inches thick and is mildly alkaline. Slopes range from 0 to 3 percent. Included in mapping are areas of Commerce, Sharkey, and Tunica soils and a few small areas at an elevation above flooding.

Natural fertility is high. Plant roots penetrate easily, and the movement of water and air is moderately rapid through these soils. In most areas, these soils have a seasonal high water table within a depth of 1½ to 3 feet from December through April. Most of the acreage is frequently flooded and subject to scouring and deposition by the Mississippi River.

Most of the acreage is in woodland and pasture. Many small areas are used as a source of borrow material for construction. Some of the acreage has been developed for docking facilities for nearby industrial plants. One small area is used for sugarcane.

Most of the acreage is very poorly suited to the economic production of cultivated crops because of frequent flooding but is suited to grazing if the soils are not flooded. Suitable pasture plants are common bermudagrass, Pensacola bahiagrass, and dallisgrass. White clover and southern wild winter peas can be grown in the higher areas that are the least severely flooded. In most areas cattle can take refuge on the adjacent levees during flooding. For most uses the main limitation is flooding. Capability unit Vw–2; woodland group 1w6.

Deerford Series

The Deerford series consists of somewhat poorly drained, slowly permeable soils that are loamy throughout, have a very low content of sand, and have high sodium saturation in the lower part of the subsoil. These soils formed in more than 4 feet of loesslike material on terrace uplands in the northern part of the parish.

In a representative profile the surface layer is brown silt loam about 5 inches thick, and the subsurface layer is light brownish-gray silt loam about 7 inches thick. The subsoil is mainly yellowish-brown and light olive-brown silty clay loam mottled in shades of brown and gray. The underlying material is mottled, light olive-brown or grayish-brown silt loam.

Most of the acreage is used for pasture. The rest is used for woodland, cultivated crops, or residential sites.

Representative profile of Deerford silt loam, in a forested area of Deerford-Verdun complex, 1.3 miles west of intersection of State Highway 431 and State Highway 931 and 1,300 feet south of State Highway 931, SW¼NE¼NE¼ of sec. 10, T. 9 S., R. 3 E.

Ap—0 to 5 inches, brown (10YR 5/3) silt loam; few, fine, faint, dark yellowish-brown mottles; weak, fine, granular structure; friable; common fine roots and pores; few, iron-manganese concretions; medium acid; abrupt, smooth boundary.

A2—5 to 12 inches, light brownish-gray (10YR 6/2) silt loam; common, medium, faint, brown (10YR 5/3) and dark-brown (10YR 4/3) mottles; weak, thin, platy structure; film; common fine roots and pores; tongues of this horizon, 2.5 to 5.0 centimeters wide, extend to a depth of 20 inches; common, fine, brown iron-manganese concretions; medium acid; abrupt, irregular boundary.

B21t—12 to 20 inches, mottled dark yellowish-brown (10YR 4/4), brown (10YR 5/3), dark-brown (7.5YR 4/4), and grayish-brown (10YR 5/2) silty clay loam; moderate, medium, prismatic structure parting to moderate, medium, subangular blocky; firm; common roots as much as 0.75 centimeter in diameter between peds; few fine pores; thick, continuous, very dark grayish-brown clay films on peds; many black stains on peds; medium acid; gradual, wavy boundary.

B22t—20 to 32 inches, yellowish-brown (10YR 5/6) silty clay loam; few, fine, distinct, grayish-brown and yellowish-brown mottles; weak, coarse, prismatic structure parting to moderate, medium, subangular blocky; firm; few roots as much as 0.75 centimeter in diameter between peds; few fine pores; nearly continuous dark grayish-brown clay films; few black stains on peds and in pores; thin, patchy silt coatings on some peds; common, fine, black iron-manganese concretions; mildly alkaline; clear, irregular boundary.

B3t—32 to 45 inches, light olive-brown (2.5Y 5/6) silt loam; common, fine, faint, light yellowish-brown mottles; weak, coarse, subangular blocky structure; friable; common thin vertical veins of light brownish-gray silt; few channels filled with dark-brown silty clay loam; few fine roots; common fine pores; common, fine black iron-manganese concretions; moderately alkaline; gradual, smooth boundary.

C1—45 to 54 inches, light olive-brown (2.5Y 5/4 and 5/6) silt loam; common, medium, distinct, grayish-brown (10YR 5/2) mottles; massive; friable; few thin vertical veins of grayish-brown silt; common, fine, black iron-manganese concretions; moderately alkaline; gradual, smooth boundary.

C2—54 to 65 inches, grayish-brown (2.5Y 5/2) silt loam; many, medium, distinct, light olive-brown (2.5Y 5/6) mottles; massive; firm; few, fine, black and brown iron-manganese concretions; moderately alkaline.

The A1 or Ap horizon is brown, grayish brown, dark brown, or dark grayish brown. The A2 horizon is grayish brown, light brownish gray, brown, or pale brown. The A horizon is very strongly acid through medium acid. The thickness of the combined Ap and A2 horizons is 6 to 16 inches. The Bt horizon is yellowish-brown, dark yellowish-brown, brown, or light olive-brown silt loam or silty clay loam. The upper part of the B horizon is strongly acid or medium acid, and the lower part is neutral through moderately alkaline. The C horizon is grayish brown or light olive brown mottled in shades of brown and gray. It is neutral through moderately alkaline. Depth to layers that have high sodium saturation ranges from 18 to 30 inches.

Deerford soils are associated with Calhoun, Olivier, Patoutville, Frost, and Verdun soils. They contain more sodium and are more alkaline than Calhoun soils and are not so gray. Deerford soils contain more sodium and are more alkaline than Olivier soils. They contain more sodium than Patoutville soils, and they are not so gray as Frost soils. Deerford soils are similar to Verdun soils, but they have high sodium saturation only in the lower part of the B horizon.

Deerford-Patoutville complex (Dp).—This complex consists of somewhat poorly drained soils on terrace uplands. These soils are loamy throughout, and the content of sand is very low. The areas range from 15 to 150 acres in size. Slopes are 0.5 to 2 percent.

About 50 percent of this complex is Deerford silt loam and 30 percent is Patoutville silt loam. The Deerford soil generally is in lower areas of side slopes, and the Patoutville soil is in slightly higher areas. Included in mapping are small areas of Olivier and Verdun soils.

The Deerford soil has a profile similar to the one described as representative of the series, but the surface layer is grayish brown and about 8 inches thick.

Natural fertility is low. The lower part of the subsoil has a high sodium content. Runoff is slow to medium. Water moves slowly into the lower part of the subsoil, and the subsoil generally remains dry even in wet periods. This soil has a high water table perched within a depth of 1½ feet from December through April. Dryness restricts the growth of plant roots in the lower part of the subsoil. Crop yields and choice of plants are reduced if this soil is graded or excavated to a depth that the lower part of the subsoil, which has a high sodium content, is at the surface. This soil is hard when dry. The surface layer is subject to liquefaction and piping if this soil is used as construction material.

The Patoutville soil is somewhat low in natural fertility. It has a slightly deeper root zone than that of the Deerford soil. Runoff is slow to medium. Water moves slowly or somewhat slowly through the subsoil. This soil has a high water table perched within a depth of 1½ feet from December through April.

Most of the acreage is used for pasture. A small acreage is used for crops, woodland, or residential sites.

If the supply of moisture is adequate, these soils are suited to most crops and pasture plants commonly grown in the parish. Suitable crops are corn, oats, soybeans, sweetpotatoes, and truck crops. Suitable pasture plants are common bermudagrass, Pensacola bahiagrass, Coastal bermudagrass, dallisgrass, carpetgrass, ryegrass, millet, white clover, and southern wild winter peas.

These soils are fairly easy to work, but they are difficult to keep in good tilth. They tend to crust if they are clean tilled. Tilth can be improved and surface crusting can be reduced by plowing under crop residue and green manure crops. Areas of slow runoff may need surface drainage if they are used for crops and pasture. Proper row direction and farming on the contour help control erosion. Land smoothing improves surface drainage, but deep cutting may expose the subsoil, which has a high sodium content. Crop response to fertilizer is fair, and lime generally is needed. For most uses the main limitation is moderate wetness. Capabillity unit IIw–5; Deerford soil in woodland group 2w8, Patoutville soil in woodland group 1w8.

Deerford-Verdun complex (Dv).—This complex consists of somewhat poorly drained soils on terrace uplands. The soils are loamy throughout, and the content of sand is very low. The areas range from 20 to 400 acres in size. Slopes are less than 1 percent.

About 45 percent of this complex is Deerford silt loam and 35 percent is Verdun silt loam. The Deerford soil is at a higher elevation. The Verdun soil is on the same landscape but generally is at a slightly lower elevation. Included in mapping are small areas of Acy, Calhoun, and Foley soils.

The Deerford soil has the profile described as representative of the series. The lower part of the subsoil has a high sodium content. Water moves slowly into the lower part of the subsoil, and the subsoil generally remains dry even in wet periods. This soil has a high water table perched within a depth of 1.5 feet from December through April.

The Verdun soil has a high content of sodium throughout the subsoil. Water moves slowly into the subsoil, and the subsoil remains dry even in wet periods. This soil has a high water table perched within a depth of 1½ feet from December through April. Dryness restricts the growth of plant roots and limits the choice of plants. Plant growth may be restricted by lack of moisture in summer and fall.

The soils in this complex are low in natural fertility. They are hard when dry. Runoff is slow. The surface layer generally is wet in winter and spring. The Deerford soil has a deeper root zone than the Verdun soil. Grading or excavating to a depth that exposes the subsoil, which is high in sodium content, restricts the choice of plants and is not beneficial to crops. The surface layer is subject to liquefaction and piping if these soils are used as construction material.

Most of the acreage is used for pasture and mixed hardwood forest. Some acreage is used for cultivated crops or residential sites.

If the supply of moisture is adequate, the soils in this complex are better suited to shallow-rooted, cool-season plants than to most other uses (fig. 4). Cultivated crops and pasture plants do fairly well if the rainfall is evenly distributed throughout the growing season. Bermudagrass, carpetgrass, dallisgrass, Pensacola bahiagrass, white clover, and southern wild winter peas are moderately well suited. Most cultivated crops, such as corn and soybeans, and most truck crops are poorly suited.

These soils are difficult to keep in good tilth, and they tend to crust if they are clean tilled. Tilth can be improved and surface crusting can be reduced by plowing under crop residue and green-manure crops. A surface drainage system may be needed in depressions. The response to fertilizer is fair, but lime generally is not needed. During dry periods in the summer and fall, cultivated crops and pasture plants are affected by a shortage of moisture. For most uses on both these soils, the main limitation is moderate wetness. Capability unit IIIs-1; Deerford soil in woodland group 2w8, Verdun soil in woodland group 3t9.

Essen Series

The Essen series consists of somewhat poorly drained, moderately slowly permeable soils that are loamy throughout and have a very low content of sand. These soils formed in more than 4 feet of loesslike material on terrace uplands in the central part of the parish.

In a representative profile the surface layer is dark grayish-brown silt loam about 7 inches thick. The subsoil is silty clay loam and extends to a depth of 47 inches. It is grayish brown in the upper part, light olive brown in the middle part, and yellowish brown in the lower part. The subsoil is mottled in shades of brown and gray. The underlying material is mottled, yellowish-brown and grayish-brown silt loam.

Most of the acreage is used for pasture and crops. The rest is used mainly for woodland or residential sites.

Representative profile of Essen silt loam, in a pasture 2.6 miles south of Gonzales, 300 feet northwest of intersection of State Highway 44 and State Highway 941, in the northeast corner of Spanish Land Grant, sec. 13, T. 10 S., R. 3 E.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam; moderate, medium, subangular blocky structure; friable; few fine pores; medium acid; abrupt, smooth boundary.

B21t—7 to 14 inches, grayish-brown (2.5Y 5/2) silty clay loam; many, medium, distinct, light olive-brown (2.5Y 5/4) mottles; weak, medium, coarse, prismatic structure parting to moderate, medium, subangular blocky; slightly firm; peds and root channels are coated with distinct, discontinuous, dark-gray and gray clay films; common, fine, soft, yellowish-brown iron-manganese concretions; neutral; clear, irregular boundary.

Figure 4.—Winter pasture of ryegrass. The soils are Deerford-Verdun complex.

B22t—14 to 32 inches, light olive-brown (2.5Y 5/4) silty clay loam; many, medium, distinct, grayish-brown (2.5Y 5/2) mottles; moderate, coarse, prismatic structure parting to moderate, medium, subangular blocky; slightly firm; few fine pores; few, fine, soft, brown iron-manganese concretions; distinct, discontinuous, dark-gray clay films on peds and in pores; mildly alkaline; clear, smooth boundary.

B3t—32 to 47 inches, yellowish-brown (10YR 5/6) silty clay loam; common, fine, distinct, grayish-brown mottles and faint, yellowish-brown mottles; weak, coarse, prismatic structure; friable; few fine pores; thin patchy films of gray clay; few, narrow, vertical veins of grayish-brown silty clay loam; few, fine, iron-manganese concretions; few calcium carbonate concretions, as much as 2.5 centimeters in diameter; moderately alkaline; gradual, wavy boundary.

C1—47 to 55 inches, mottled, yellowish-brown (10YR 5/6) and grayish-brown (10YR 5/2) silt loam; massive; friable; few vertical veins of gray silty clay loam; few, fine, black iron-manganese concretions; moderately alkaline; gradual, smooth boundary.

C2—55 to 66 inches, yellowish-brown (10YR 5/6) silt loam; massive; friable; few, fine, brown and black iron-manganese concretions; moderately alkaline.

The A horizon is dark grayish brown, grayish brown, or dark gray. It ranges from medium acid through neutral. The B21t horizon is grayish brown, light olive brown, or yellowish brown and is mottled in shades of brown and gray. It is medium acid through moderately alkaline. The lower part of the Bt horizon is light olive-brown or yellowish-brown silty clay loam or silt loam that has grayish mottles. It is 1 to 10 percent calcium carbonate concretions that are as much as 2.5 centimeters in diameter. It is neutral through moderately alkaline. The C horizon is yellowish brown or light olive brown and has grayish-brown or gray mottles. It is mildly alkaline or moderately alkaline.

Essen soils are associated with Jeanerette and Acy soils. They lack a very dark gray surface layer, which is characteristic of Jeanerette soils. Essen soils lack very dark gray or black ped coatings in the B horizon, which are typical of Acy soils.

Essen silt loam (Es).—This somewhat poorly drained soil is on terrace uplands. It is loamy throughout, and the content of sand is very low. The areas range from 30 to 300 acres in size. Slopes are less than 1 percent. Included in mapping are large areas of soils that have a surface layer of silty clay loam and small areas of Acy and Jeanerette soils.

Natural fertility is medium. Runoff is slow. Plant roots penetrate easily, but water and air move somewhat slowly through this soil. If not adequately drained, this soil has a seasonal high water table at a depth of 1.5 to 3.0 feet from December through April.

Most of the acreage is used for pasture and crops. A small acreage is used for woodland or residential sites.

This soil is suited to most of the cultivated crops and pasture plants commonly grown in the parish. Suitable crops are corn, oats, truck crops, and sugarcane, and soybeans. Suitable pasture plants are common bermudagrass, millet, carpetgrass, dallisgrass, ryegrass, white clover, Pensacola bahiagrass, and southern wild winter peas.

This soil is friable and fairly easy to keep in good tilth. Surface drainage is needed for crops and pasture in places. Land smoothing improves surface drainage. Crop response to fertilizer is fairly good, but lime generally is not needed. For most uses the main limitation is moderate wetness. Capability unit IIw–6; woodland group 1w8.

Fausse Series

The Fausse series consists of very poorly drained, very slowly permeable soils that are clayey throughout. These soils formed in thick clayey sediment in the backswamp areas on the alluvial plain.

In a representative profile the surface layer is overlain by about 2 inches of very dark grayish-brown muck. The surface layer is dark-gray clay about 9 inches thick. The subsoil, about 26 inches thick, is gray clay mottled in shades of brown. The underlying material also is gray clay.

Most of the acreage is used for woodland.

Representative profile of Fausse clay, in an area of the Fausse association, in a forested area in the Bluff Swamp, 3.6 miles north of State Highway 74, 1,200 feet west of State Highway 928, in NE¼SE¼SE¼ sec. 33, T. 8 S., R. 2 E.

02—2 inches to 0, very dark grayish-brown (10YR 3/2) muck; moderate, medium, granular structure; friable; slightly acid; abrupt, smooth boundary.

A1—0 to 9 inches, dark-gray (10YR 4/1) clay; common, medium, prominent, reddish-brown (5 YR4/4) mottles on peds; weak, coarse, prismatic structure; firm, sticky; slightly acid; gradual, wavy boundary.

B21g—9 to 18 inches, gray (10YR 5/1) clay; many, medium and fine, distinct, dark-brown (7.5YR 4/4) mottles, mainly on peds; weak and moderate, coarse, subangular blocky structure; firm, very sticky; cracks as much as 0.75 centimeter wide extend from the surface to a depth of 18 inches; neutral; gradual, wavy boundary.

B22g—18 to 35 inches, gray (5Y 5/1) clay; many, medium and coarse, prominent, dark-brown (7.5YR 4/4) mottles; massive; firm, very sticky; neutral; gradual, wavy boundary.

C1g—35 to 46 inches, gray (5Y 5/1) clay; few, medium, distinct, dark-brown (10YR 4/3) and light olive-brown (2.5Y 5/4) mottles; massive; firm, very sticky; mildly alkaline; gradual, wavy boundary.

C2g—46 to 76 inches, gray (N 6/0) clay; few, fine, distinct, light olive-brown mottles; massive; firm, very sticky; mildly alkaline.

The 02 horizon, where present, is very dark gray, dark gray, very dark grayish brown, black, or very dark brown and ranges from 1 to 4 inches in thickness. The A horizon is dark-gray or dark grayish-brown clay. The 02 horizon and A horizon are medium acid through neutral. Both the B and C horizons are gray, dark gray, greenish gray, or dark greenish gray. And they are neutral through moderately alkaline. During some years cracks form to a depth of 18 inches below the surface.

Fausse soils are associated with Galvez, Sharkey, and Barbary soils. They are more poorly drained and contain more clay than Galvez soils. They are more poorly drained than the Sharkey soils and do not form cracks to a depth of 20 inches below the surface as Sharkey soils do in most years. Fausse soils are firmer throughout than Barbary soils.

Fausse association (FA).—This mapping unit consists of very poorly drained, clayey soils that are flooded nearly continuously. It is in the backswamp area of the alluvial plain. The areas range from 20 acres to more than 2,000 acres in size; most are several hundred acres. Slopes are less than 0.5 percent.

The composition of this mapping unit is more variable than that of most other units in the parish.

About 75 percent of this association consists of Fausse soils. The rest consists mostly of Sharkey and Barbary soils. Fausse soils are in areas at an intermediate elevation, Sharkey soils in areas at the highest elevation, and Barbary soils in depressions at the lower elevation. Fausse clay, the most extensive soil in this association, has the profile described as representative of the series.

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Natural fertility is high. The soils are flooded with as much as 4 feet of water for 8 to 10 months in most years, and some large depressions are flooded nearly continuously. The soils have a water table that ranges from the surface to 2 feet below the surface. The soils shrink when dry and swell when wet. Cracks, as much as ½ inch wide and as much as 18 inches deep, may form during dry periods. The soils are hard when dry and sticky when wet, and they are difficult to use as construction material.

All of this association is in woodland, dominantly baldcypress and water tupelo.

If protected from flooding and adequately drained, these soils are moderately well suited to most cultivated crops and pasture plants commonly grown in the parish. In their present state, these soils are very poorly suited to the economic production of cultivated crops or pasture plants because they are subject to flooding. For most uses the principal limitations are flooding and very severe wetness, but for foundations the limitations are high plasticity and very high shrink-swell potential. Capability unit VIIw–1; woodland group 3w6.

Fausse-Galvez association (FG).—These soils are in the backswamp area on the alluvial plain adjacent to the Amite River. They are mainly in one area of several thousand acres. Fausse soils have slopes of less than 0.5 percent, and Galvez soils have slopes of 0 to 2 percent.

The composition of this mapping unit is more variable than that of most other units in the parish but has been controlled well enough to allow interpretation for the expected use of the soil.

About 50 percent of this association consists of Fausse soils, 30 percent of Galvez soils, and the remaining 20 percent mainly of Barbary and Sharkey soils. Included in mapping are areas covered with 2 to 12 feet of spoil material, mainly grayish-brown silty clay loam, that was removed in constructing the Amite River Diversion Channel.

Fausse soils are in swales and depressions, and Galvez soils are mainly on low, convex ridges.

The Fausse soils have a profile similar to the one described as representative of the series, but the surface layer is 12 inches thick and the subsoil is dark gray. Natural fertility is high. These soils are flooded with several feet of water for 8 to 10 months in most years, and some depressions are flooded nearly continuously. These soils have a water table that ranges from the surface to 2 feet below the surface. The soils shrink when dry and swell when wet. Cracks up to ½ inch wide and 18 inches deep form during dry periods.

The Galvez soils have a profile similar to the one described as representative of the series, but the surface layer is slightly acid, grayish-brown silty clay loam about 8 inches thick. Natural fertility is medium to high. The ridges at the lowest elevation are frequently flooded and those at a higher elevation are occasionally flooded. These soils have a seasonal high water table at a depth of 1.5 to 3 feet from December through April.

Most of the association is in woodland.

If protected from flooding and if leveled and adequately drained, the soils are moderately well suited to most cultivated crops and pasture plants commonly grown in the parish. In their present state, the soils are very poorly suited to the economic production of cultivated crops or pasture plants because of flooding. For most uses, flooding is the main limitation on Galvez soils and very severe wetness and flooding on Fausse soils. For foundations, high plasticity and very high shrink-swell potential are limitations on Fausse soils. Capability unit VIIw-1; Fausse soil in woodland group 3w6, Galvez soil in woodland group 2w5.

Foley Series

The Foley series consists of poorly drained, slowly permeable soils that are loamy throughout, have a very low content of sand, and have high sodium saturation in the lower part of the subsoil. These soils formed in more than 4 feet of loesslike material on terrace uplands in the northern part of the parish.

In a representative profile the surface layer is dark grayish-brown silt loam about 5 inches thick, and the subsurface layer is light brownish-gray and grayish-brown silt loam about 6 inches thick. The subsoil, to a depth of more than 50 inches, is grayish-brown silty clay loam mottled in shades of brown and gray. The underlying material is also grayish-brown silty clay loam.

Most of the acreage is used for pasture and woodland. A small acreage is used for cultivated crops or residential sites.

Representative profile of Foley silt loam, in an area of Foley-Deerford complex, in a pasture 0.6 mile west of Brignac, 1,200 feet south of State Highway 621, in SE¼NE¼NW¼ of sec. 14, T. 9 S., R. 3 E.

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, subangular blocky structure; friable; common fine roots; medium acid; abrupt, smooth boundary.

A2g—5 to 11 inches, light brownish-gray (10YR 6/2) and grayish-brown (10YR 5/2) silt loam; common, fine, distinct, yellowish-brown and dark yellowish-brown mottles; weak, coarse, platy structure; friable; few fine roots; few, fine, black iron-manganese concretions; medium acid; abrupt, irregular boundary.

B21tg—11 to 23 inches, grayish-brown (2.5Y 5/2) silty clay loam; common, fine, distinct, light olive-brown mottles; moderate, medium, subangular blocky structure; slightly firm; few fine roots; vertical interfingers of gray silt; discontinuous clay films; few, fine, black iron-manganese concretions; medium acid; clear, wavy boundary.

B22tg—23 to 31 inches, grayish-brown (2.5Y 5/2) silty clay loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; few fine roots; continuous clay films; vertical interfingers of gray (10YR 6/1) silt; few, fine, black iron-manganese concretions; neutral; clear, wavy boundary.

B23tg—31 to 42 inches, grayish-brown (2.5Y 5/2) silty clay loam; common, medium, distinct, light olive-brown (2.5Y 5/4) mottles; moderate, medium, subangular blocky structure; firm; few fine roots; distinct, continuous, gray clay films; few, fine, brown iron-manganese concretions; moderately alkaline; clear, smooth boundary.

B3tg—42 to 55 inches, grayish-brown (2.5Y 5/2) silty clay loam; common, medium, distinct, light olive-brown (2.5Y 5/4) mottles; moderate, medium, subangular blocky structure; firm; thin discontinuous clay films; thin patchy silt coatings; about 10 percent calcium carbonate concretions, as much as 1.25 centimeters in diameter; few, fine, yellowish-brown and black iron-manganese concretions; moderately alkaline; gradual, smooth boundary.

Cg—55 to 65 inches, grayish-brown (2.5Y 5/2) silty clay loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; weak, coarse, subangular blocky structure; firm; few, fine, black iron-manganese concretions; moderately alkaline.

The A1 or Ap horizon is dark grayish brown or grayish brown. The A2 horizon is gray, grayish brown, or light brownish gray. The A horizon is medium acid or slightly acid. It ranges from about 6 inches to 14 inches in thickness. The B2t horizon is gray, grayish brown, or light brownish gray and has mottles in shades of brown and gray. The upper part of the B2t horizon is medium acid or slightly acid, and the lower part ranges from neutral through moderately alkaline. The B3t and C horizons are gray, grayish brown, light olive brown, brown, or pale brown and have mottles in shades of brown and gray. They are mildly alkaline or moderately alkaline. Depth to layers that have high sodium saturation ranges from 20 to 32 inches.

Foley soils are associated with Acy, Calhoun, Frost, Deerford, and Verdun soils. They are more poorly drained and contain more sodium than Acy soils. They contain more sodium than Calhoun and Frost soils. Foley soils are more poorly drained than Deerford and Verdun soils, and they lack the high concentration of sodium in the upper part of the B horizon, which is typical of Verdun soils.

Foley-Deerford complex (Fo).—This complex consists of soils on terrace uplands. These soils are loamy throughout, and the content of sand is very low. The areas range from 15 to 200 acres in size. Slopes are less than 1 percent.

About 50 percent of this complex is Foley silt loam, and 25 percent is Deerford silt loam. The Foley soil is poorly drained and generally is in the lowest position. The Deerford soil is somewhat poorly drained and also is in the lowest position or slightly higher. Included in mapping are small areas of Acy, Calhoun, and Verdun soils.

The Foley soil dries out more slowly than most surrounding soils. Water moves slowly through the subsoil. This soil has a high water table perched within a depth of 1½ feet from December through April. Wetness causes poor aeration and restricts the growth of plant roots.

The Deerford soil has a profile similar to the one described as representative of the series, but the surface layer is grayish brown and about 6 inches thick. The upper part of the subsoil is dark yellowish brown. Water moves slowly into the subsoil, and the subsoil generally remains dry, even in wet periods. Dryness restricts the growth of plant roots in the lower part of the subsoil. Some water perches above the subsoil from December through April.

Natural fertility is low. Runoff is slow. The lower part of the subsoil in these soils has a high content of sodium. The surface layer is wet for long periods in winter and spring. These soils are hard when dry. Grading or excavating the soils to a depth that exposes layers high in sodium content reduces the choice of plants and is not beneficial to crops. The surface layer is subject to liquefaction and piping if these soils are used as construction material.

Most of the acreage is used for pasture and woodland. Some small areas are used for cultivated crops, truck crops, and pasture plants.

These soils are suited to the limited number of crops and pasture plants commonly grown in the area, but planting dates in some areas have to be delayed unless adequate surface drainage is provided. Suitable crops are corn, soybeans, oats, and truck crops. Suitable pasture plants are common bermudagrass, Pensacola bahiagrass, tall fescue, ryegrass, millet, white clover, and southern wild winter peas.

These soils are somewhat difficult to keep in good tilth, and they tend to crust if clean tilled. Tilth can be improved and surface crusting can be reduced by plowing under crop residue and green manure crops. Surface drainage is needed for both cultivated crops and pasture plants. Proper direction of rows improves surface drainage (fig. 5).

Figure 5.—Proper direction of rows improves surface drainage for truck crops, such as strawberries. The soils are Foley-Deerford complex.

Land smoothing and leveling improve surface drainage, but deep cutting may expose the subsoil, which has a high sodium content. Most crops respond fairly well to fertilizer, and lime generally is needed. For most uses the principal limitation is moderate to severe wetness. Capability unit IIIw-4; Foley soil in woodland group 3w9, Deerford soil in woodland group 2w8.

Frost Series

The Frost series consists of poorly drained, slowly permeable soils that are loamy throughout and have a very low content of sand. These soils formed in more than 4 feet of loesslike material in depressed areas mainly along drainageways on the terrace uplands in the northern part of the parish.

In a representative profile the surface layer is dark grayish-brown silt loam about 8 inches thick. The subsoil is silty clay loam to a depth of more than 50 inches. It is dark gray in the upper part, gray in the middle part, and olive gray in the lower part. It is mottled in shades of brown and gray.

Most of the acreage is in woodland and pasture. A very small acreage is used for crops or residential sites.

Representative profile of Frost silt loam, in a forested area 1.2 miles east of U.S. Highway 61, 2,500 feet south of State Highway 929, in SW¼SW¼NE¼ sec. 6, T. 9 S., R. 3 E.

A1—0 to 3 inches, dark grayish-brown (10YR 4/2) silt loam; moderate, medium, subangular blocky structure; friable; common fine streaks of light-gray silt; medium acid; clear, smooth boundary.

A2—3 to 8 inches, dark grayish-brown (10YR 4/2) silt loam; few, fine, distinct, strong-brown mottles; massive; firm; common fine streaks of light-gray silt; medium acid; abrupt, irregular boundary.

B21tg—8 to 21 inches, dark-gray (10YR 4/1) silty clay loam; few, fine, distinct, dark-brown mottles and few, medium, distinct, yellowish-brown (10YR 5/4) mottles; massive; friable; common fine pores; common fine streaks of light-gray silt; about 30 percent tongues of gray silt loam; discontinuous dark-gray clay films in root channels; medium acid; gradual, wavy boundary.

B22tg—21 to 31 inches, dark-gray (10YR 4/1) silty clay loam; common, fine, faint, light grayish-brown mottles and distinct yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; few fine pores; continuous dark-gray clay films on peds and in pores; patchy silt coatings on peds; medium acid; gradual, wavy boundary.

B23tg—31 to 40 inches, gray (10YR 5/1) silty clay loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, medium, subangular blocky structure; firm; few tongues of light brownish-gray silt loam, as much as 3 centimeters wide; few fine pores; nearly continuous dark-gray clay films on peds and in pores; neutral; gradual, wavy boundary.

B24tg—40 to 64 inches, olive-gray (5Y 5/2) silty clay loam; many, fine, distinct, light olive-brown mottles; moderate, coarse, subangular blocky structure; firm; thin continuous clay films on ped faces and in pores; few, fine, black iron-manganese concretions; few patchy silt coatings; mildly alkaline.

The A horizon is gray, grayish brown, dark gray, or dark grayish brown. It ranges from 8 to 15 inches in thickness. It is medium acid through very strongly acid. The B horizon is gray, grayish brown, light brownish gray, dark gray, dark grayish brown, light olive gray, or olive gray and is mottled in shades of brown and gray. Clay films in the B horizon are dark gray or very dark gray. The upper part of the B horizon ranges from medium acid through very strongly acid, and the lower part ranges from strongly acid through mildly alkaline.

Frost soils are associated with Acy, Calhoun, Foley, and Deerford soils. They are more acid and more poorly drained than Acy soils. They have dark-gray or very dark gray clay films in the Bt horizon, and Calhoun and Foley soils do not. Frost soils do not have the high sodium saturation in the lower part of the Bt horizon that is characteristic of Deerford and Foley soils.

Frost silt loam (Fr).—This poorly drained soil is in drainageways on terrace uplands. It is loamy throughout, and the content of sand is very low. The areas range from 15 to 150 acres in size, and most of them are long and narrow. Slopes are less than 1 percent. Included in mapping are small areas of Calhoun soils.

Natural fertility is low. Runoff is slow. Water moves slowly through the subsoil. This soil has a high water table perched within a depth of 2½ feet from December through April. It dries out more slowly than most surrounding soils. Wetness causes poor aeration and restricts the growth of plant roots. Water stands in some areas for short periods after heavy rain. The surface layer of this soil is subject to liquefaction and piping if it is used as construction material.

Most of the acreage is used for woodland and pasture. A very small acreage is used for cultivated crops or residential sites.

This soil is suited to many crops and pasture plants commonly grown in the parish. Planting dates may have to be delayed unless adequate surface drainage is provided. Suitable crops are corn, soybeans, sweetpotatoes, and rice. Suitable pasture plants are common bermudagrass, Pensacola bahiagrass, tall fescue, ryegrass, millet, white clover, and southern wild winter peas.

It is somewhat difficult to keep this soil in good tilth and to keep the surface from crusting. Tilth can be improved and surface crusting can be reduced by plowing under crop residue and green manure crops. A surface drainage system is needed for cultivated crops and pasture. Land smoothing and leveling improve surface drainage and increase the efficiency of farm equipment. Crop response to fertilizer is fairly good, and lime generally is needed. For most uses the main limitation is severe wetness. Capability unit IIIw–3; woodland group 2w9.

Galvez Series

The Galvez series consists of somewhat poorly drained, moderately slowly permeable soils that are loamy throughout and have a low content of sand. These soils formed in loamy sediment on natural levees on the alluvial plain.

In a representative profile the surface layer is dark grayish-brown silt loam about 6 inches thick. The subsoil is 37 inches thick. It is grayish-brown silty clay loam mottled in shades of brown. The underlying material is grayish-brown silt loam.

About half the acreage is in woodland. Most of the rest is used for pasture. A small acreage is used for crops and residential sites.

Representative profile of Galvez silt loam, in a pasture 0.2 mile east of State Highway 73 and 300 feet north of State Highway 429, in SW¼SE¼SW¼ sec. 23, T. 9 S., R. 2 E.

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; medium acid; abrupt, wavy boundary.

B21t—6 to 15 inches, grayish-brown (10YR 5/2) silty clay loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles and few, medium, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm; thin continuous clay films on peds; few, brown iron-manganese concretions; slightly acid; clear, smooth boundary.

B22t—15 to 23 inches, grayish-brown (10YR 5/2) silty clay loam; common, medium, distinct, strong-brown (7.5YR 5/6) and dark-brown (7.5YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; distinct continuous clay films on peds; common, medium, brown iron-manganese concretions; neutral; clear, smooth boundary.

B23t—23 to 34 inches, grayish-brown (10YR 5/2) silty clay loam; many, medium, distinct, yellowish-brown (10YR 5/6) and strong-brown (7.5YR 5/6) mottles; moderate, medium, subangular blocky structure; firm; few discontinuous clay films on peds; few, fine, black iron-manganese concretions; neutral; gradual, smooth boundary.

B3t—34 to 43 inches, grayish-brown (10YR 5/2) silty clay loam; common, fine, distinct, yellowish-brown mottles; weak, medium, subangular blocky structure; firm; very thin and very patchy clay films; few, medium, brown and black iron-manganese concretions; mildly alkaline; gradual, smooth boundary.

C—43 to 62 inches, grayish-brown (10YR 5/2) silt loam; many, coarse, distinct, yellowish-brown (10YR 5/6) mottles; massive; friable; few, fine, brown and black iron-manganese concretions; mildly alkaline.

The A horizon is grayish-brown, dark grayish-brown, dark-gray, or gray silt loam or silty clay loam. It ranges from strongly acid through slightly acid. The Bt horizon is grayish brown or dark grayish brown and is mottled in shades of brown and gray. The upper part of the Bt horizon is strongly acid through slightly acid, and the lower part is neutral through moderately alkaline. The C horizon is silt loam, silty clay loam, or silty clay and is mottled in shades of gray and brown. It is mildly alkaline or moderately alkaline.

Galvez soils are associated with Essen and Commerce soils, They are grayer in the lower part of the Bt horizon than Essen soils. Galvez soils have a more strongly developed profile than Commerce soils.

Galvez silt loam (Ga).—This somewhat poorly drained soil is on natural levees on the alluvial plain. It has the profile described as representative of the series. It is loamy throughout, and the content of sand is low. The areas range from 15 to 300 acres in size. Slopes are 0 to 1 percent. Included in mapping are small areas of Patoutville soils and a few areas of soils that have slopes of 1 to 3 percent.

Natural fertility is medium to high. Runoff is slow. Water moves somewhat slowly through the subsoil. If not adequately drained, this soil has a high water table perched within a depth of 3 feet from December through April. A plowpan may form.

Most of the acreage is used for pasture and crops. A small acreage is used for woodland or residential sites.

This soil is suited to most crops and pasture plants commonly grown in the parish. Suitable crops are corn, oats, truck crops, sugarcane, and soybeans. Suitable pasture plants are common bermudagrass, millet, tall fescue, dallisgrass, ryegrass, johnsongrass, Pensacola bahiagrass, and white clover.

This soil is friable and fairly easy to keep in good tilth. Traffic pans may form if the soil is cultivated, but they can be broken by plowing to variable depths or chiseling. Surface drainage may be needed for optimum growth of most cultivated crops. Land smoothing improves surface drainage and increases the efficiency of farm equipment. Crop response to fertilizer is good, and lime generally is needed. For most uses the main limitation is moderate wetness. Capability unit IIw–2; woodland group 2w5.

Galvez silty clay loam (Gb).—This is a somewhat poorly drained soil on natural levees on the alluvial plain. It has a profile similar to the one described as representative of the series, but the surface layer is silty clay loam. It is loamy throughout, and the content of sand is low. Areas range from 15 to 200 acres in size. Slopes are less than 1 percent. Included in mapping are small areas of Sharkey silty clay loam and a few areas that have slopes of more than 1 percent.

Natural fertility is medium to high. Runoff is slow to very slow. Water moves somewhat slowly through this soil. If not adequately drained, this soil has a high water table perched within a depth of 3 feet from December through April. Water stands in depressions for short periods after rain.

Most of the acreage is in pasture and woodland. A small acreage is used for crops.

This soil is suited to most of the crops and pasture plants commonly grown in the parish. Suitable crops are corn, oats, truck crops, soybeans, and sugarcane. Suitable pasture plants are common bermudagrass, millet, dallisgrass, ryegrass, tall fescue, johnsongrass, Pensacola bahiagrass, and white clover.

Because the surface layer is silty clay loam, good tilth is somewhat difficult to maintain. This soil can be worked only within a fairly narrow range of moisture content without becoming cloddy. A system of surface drainage is needed to remove excess surface water. Land smoothing and leveling improve surface drainage and increase the efficiency of farm equipment. Crop response to fertilizer is good, but lime generally is needed. For most uses the main limitation is moderate wetness. Capability unit IIw–4; woodland group 2w5.

Jeanerette Series

The Jeanerette series consists of somewhat poorly drained, slowly permeable soils that are loamy throughout and have a very low content of sand. These soils formed in more than 4 feet of loesslike material on terrace uplands in the northern part of the parish.

In a representative profile the surface layer is very dark gray silt loam about 7 inches thick. The subsoil is silty clay loam about 30 inches thick. It is black in the upper part, dark grayish brown and grayish brown in the middle part, and light olive brown in the lower part. The subsoil is mottled in shades of brown and gray. The underlying material is light olive-brown to mottled, yellowish-brown silt loam.

About half of the acreage is used for woodland. Most of the rest is used for pasture. A small acreage is used for crops or residential sites.

Representative profile of Jeanerette silt loam, in a forested area 1.5 miles southeast of State Highway 73 and 1,200 feet north of State Highway 30, in the northeast corner of Spanish Land Grant, sec. 50, T. 9 S., R. 2 E.

Ap—0 to 7 inches, very dark gray (10YR 3/1) silt loam; weak, medium, subangular blocky structure; friable; mildly alkaline; clear, smooth boundary.

B21t—7 to 16 inches, black (10YR 2/1) silty clay loam; moderate, medium, subangular blocky structure; firm; thin discontinuous clay films on peds; mildly alkaline; gradual, smooth boundary.

B22t—16 to 23 inches, dark grayish-brown (2.5Y 4/2) silty clay loam; moderate, medium, subangular blocky structure; firm; dark-gray clay films on peds; common fine calcium carbonate concretions; few, fine, black iron-manganese concretions; moderately alkaline; clear, smooth boundary.

B23tca—23 to 30 inches, grayish-brown (2.5Y 5/2) silty clay loam; common, fine, distinct, light olive-brown mottles; few streaks of very dark gray silty clay loam; weak, medium, prismatic structure parting to moderate, medium, subangular blocky; firm; continuous dark grayish-brown clay films on peds; 10 to 15 percent calcium carbonate concretions, as much as 3.75 centimeters in diameter; few, fine, black iron-manganese concretions; moderately alkaline; gradual, smooth boundary.

B3t—30 to 37 inches, light olive-brown (2.5Y 5/4) silty clay loam; coarse, medium, distinct, grayish-brown (2.5Y 5/2) mottles; weak, medium, prismatic structure parting to moderate, medium, subangular blocky; firm; discontinuous dark grayish-brown clay films on peds; few calcium carbonate concretions, as much as 2.5 centimeters in diameter; few, fine, black iron-manganese concretions; moderately alkaline; gradual, smooth boundary.

C1—37 to 46 inches, light olive-brown (2.5Y 5/4 and 5/6) silt loam; coarse, medium, distinct, grayish-brown (2.5Y 5/2) mottles; massive; friable; few, fine, black iron-manganese concretions; moderately alkaline; gradual, smooth boundary.

C2—46 to 62 inches, mottled, yellowish-brown (10YR 5/6) silt loam; few, fine, distinct, grayish-brown mottles; massive; friable; few, fine, black iron-manganese concretions; moderately alkaline.

The A horizon is very dark gray, very dark grayish brown, or black. It is medium acid through mildly alkaline. The B2t horizon is very dark gray, black, or very dark grayish brown in the upper part and dark grayish brown, grayish brown, light olive brown, or yellowish brown in the lower part. It is silt loam or silty clay loam mottled in shades of brown or gray. It contains 5 to 25 percent calcium carbonate concretions as much as 3.75 centimeters in diameter. The B2t horizon is neutral through moderately alkaline. The B3t horizon is light olive-brown or yellowish-brown silty clay loam or silt loam and has grayish-brown or gray mottles. It is mildly alkaline or moderately alkaline. The C horizon is light olive brown or yellowish brown.

Jeanerette soils are associated with Acy and Essen soils. They have a darker colored A horizon than Acy and Essen soils.

Jeanerette silt loam (Je).—This somewhat poorly drained soil is on terrace uplands. It is loamy throughout, and the content of sand is very low. The areas range from 15 to 100 acres in size. Slopes are less than 1 percent. Included in mapping are a few large areas of soils that have a surface layer of silty clay loam and small areas of Acy and Essen soils.

Natural fertility is medium. Runoff is slow. Plant roots penetrate easily, but water and air move slowly through this soil. This soil has a high water table perched within a depth of 2½ feet from December through April. It dries out more slowly than most surrounding soils.

About half the acreage is in woodland. Most of the rest is in pasture. A small acreage is used for cultivated crops or residential sites.

This soil is suited to many crops and pasture plants commonly grown in the parish. Suitable crops are corn, oats, soybeans, and truck crops. Suitable pasture plants are common bermudagrass, Pensacola bahiagrass, tall fescue, ryegrass, white clover, and southern wild winter peas.

This soil is fairly easy to keep in good tilth. A surface drainage system generally is needed for cultivated crops and pasture. Land smoothing and leveling improve surface drainage and increase the efficiency of farm equipment. Crop response to fertilizer is fairly good, but lime generally is not needed. For most uses the main limitation is moderate wetness. Capability unit IIw–6; woodland group 2w5.

Memphis Series

The Memphis series consists of well-drained, moderately permeable soils that are loamy throughout and have a very low content of sand. These soils formed in more than 4 feet of loesslike material on terrace uplands on the escarpment adjacent to the alluvial plain in the northern part of the parish.

In a representative profile the surface layer is brown silt loam about 7 inches thick. The subsoil, extending to a depth of 62 inches, is yellowish-brown silt loam in the upper 5 inches, dark-brown silty clay loam in the next 34 inches, and yellowish-brown and dark-brown silt loam in the lower 16 inches. The underlying material is yellowish-brown silt loam.

Almost all of the acreage is used for hardwood trees and pasture.

Representative profile of Memphis silt loam, in an area of Memphis complex, 5 to 30 percent slopes, in a forested area 1.2 miles south of State Highway 427 and 200 feet east of State Highway 928, in the southwest corner of Spanish Land Grant, sec. 14, T. 8 S., R. 2 E.

A1—0 to 7 inches, brown (10YR 5/3) silt loam; weak, medium, subangular blocky structure; friable; strongly acid; clear, smooth boundary.

B1—7 to 12 inches, yellowish-brown (10YR 5/4) silt loam; weak, medium, subangular blocky structure; friable; strongly acid; clear, smooth boundary.

B21t—12 to 28 inches, dark-brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; firm; few fine pores; thin continuous clay films; patchy silt coatings in some pores; strongly acid; clear, wavy boundary.

B22t—28 to 46 inches, dark-brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; firm; thin discontinuous clay films; thin, patchy, gray silt coatings on some peds; patchy dark-colored stains on some peds; strongly acid; clear, wavy boundary.

B3t—46 to 62 inches, yellowish-brown (10YR 5/4 and 5/6) and dark-brown (7.5YR 4/4) silt loam; weak, medium, subangular blocky structure; friable; about 10 percent of peds are brittle; thin discontinuous clay films on peds; thin continuous silt coatings on peds; strongly acid; gradual, wavy boundary.

C—62 to 70 inches, yellowish-brown (10YR 5/4 and 5/6) silt loam; common, medium, distinct, dark-brown (7.5YR 4/4) and grayish-brown (10YR 5/2) mottles; massive; firm; thin gray silt coatings in cracks; strongly acid.

The A horizon is grayish brown, brown, dark brown, or dark yellowish brown and is 3 to 12 inches thick. The B1 horizon is yellowish brown, brown, or dark yellowish brown. The B21t horizon is silt loam or silty clay loam. The Bt horizon and C horizon are strong brown, brown, dark brown, dark yellowish brown, or yellowish brown. Reaction ranges from very strongly acid through medium acid throughout the profile.

Memphis soils are associated with Olivier and Calhoun soils. They are better drained and browner throughout than those soils, and Memphis soils lack the fragipan that is characteristic of Olivier soils.

Memphis complex, 5 to 30 percent slopes (MeE).—This complex is in two areas on terrace uplands on the escarpment adjacent to the alluvial plain. One area is about 20

acres in size, and the other is about 475 acres. The larger area is several miles long and very narrow.

About 60 percent of this complex is well-drained Memphis soils, and 25 percent is poorly drained soils that formed in mixed alluvium and colluvium. The alluvium and colluvium soils are on the ravine bottoms and along a narrow band between the escarpment and the alluvial plain. Included in mapping are small areas of Olivier soils and a few small areas where erosion has exposed the subsoil.

The Memphis soils are loamy throughout, and they have a very low content of sand. The poorly drained soils have a surface layer of gray silt loam, 5 to 15 inches thick, and a subsoil of gray silty clay loam or silt loam.

The Memphis soils are somewhat low in natural fertility. Runoff is medium to rapid. Plant roots penetrate easily, and the movement of water and air is moderately rapid through the soils. The depth to a seasonal high water table is more than 6 feet.

The poorly drained soils are mainly medium acid or strongly acid, but the subsoil ranges to neutral. Runoff is slow, and some areas are subject to flooding. Water moves slowly through the subsoil, and the soil is wet most of the winter and spring. Wetness causes poor aeration, and restricts the growth of plant roots. The surface layer is subject to liquefaction and piping when used as construction material.

Most areas of Memphis soils in this complex are used for pasture and mixed hardwood forest. Nearly all the acreage of poorly drained soils is in mixed hardwood forest. Several ponds for watering livestock and for recreation use have been constructed in some ravines.

Because of the slope, runoff is rapid and the hazard of erosion is severe on the Memphis soils; consequently, Memphis soils are poorly suited to cultivated crops. They are suited to many pasture plants commonly grown in the parish. Suitable plants are common bermudagrass, Coastal bermudagrass, Pensacola bahiagrass, crimson clover, and southern wild winter peas. Plants generally have an adequate supply of moisture during dry periods in summer and fall. Well-fertilized pasture plants, if not overgrazed, reduce runoff and control erosion. The response of pasture plants to fertilizer is fairly good, and lime is generally needed.

Because of the hazard of flooding and wetness, the poorly drained soils in this complex are poorly suited to cultivated crops. They are suited to many pasture plants commonly grown in the parish. Suitable plants are common bermudagrass, Pensacola bahiagrass, millet, white clover, ryegrass, and southern wild winter peas. The response of pasture plants to fertilizer is fairly good, and lime is generally needed.

Wetness and the hazard of flooding are the main limitations to most uses of the poorly drained soils, and slope is the main limitation of the other soils. Capability unit VIe–1; soils that have slopes of 5 to 17 percent in woodland group 2o7, soils that have slopes of 17 to 30 percent in woodland group 2r8.

Olivier Series

The Olivier series consists of somewhat poorly drained, slowly permeable soils that are loamy throughout and have a very low content of sand. These soils formed in more than 4 feet of loesslike material on terrace uplands in the northern part of the parish.

In a representative profile the surface layer is brown silt loam about 5 inches thick. The subsoil is yellowish-brown silty clay loam in the upper 13 inches. The lower part of the subsoil, to a depth of more than 50 inches, is a fragipan of yellowish-brown silty clay loam mottled in shades of gray and brown.

Most of the acreage is used for pasture and crops. The rest is used for woodland and residential sites.

Representative profile of Olivier silt loam in a forested area 1 mile northwest of Port Vincent and 400 feet north of State Highway 42, southeastern part of Spanish Land Grant, sec. 4, T. 8 S., R. 3 E.

Ap—0 to 5 inches, brown (10YR 5/3) silt loam; few, fine, faint, grayish-brown mottles; weak, thin, platy structure; friable; many fine roots; common, fine, black and brown iron-manganese concretions; strongly acid; abrupt, smooth boundary.

B1t—5 to 9 inches, yellowish-brown (10YR 5/4) silt loam; few fine, distinct, gray and grayish-brown mottles; weak fine, subangular blocky structure; friable; common fine roots; thin patchy clay films on peds; few, fine, brown and black iron-manganese concretions; very strongly acid; clear, wavy boundary.

B21t—9 to 13 inches, yellowish-brown (10YR 5/4) silty clay loam; common, medium, distinct, strong-brown (7.5YR 6/5) mottles; moderate, medium, subangular blocky structure; friable; common fine roots; thin patchy clay films on some peds; patchy light brownish-gray silt coatings on some peds; few, fine, yellowish-red and black iron-manganese concretions; very strongly acid; clear, wavy boundary.

B22t—13 to 18 inches, yellowish-brown (10YR 5/6) silty clay loam; many, medium, distinct, grayish-brown (10YR 5/2) and brown (10YR 5/3) mottles; moderate, medium, prismatic structure; firm; common fine roots; thin patchy clay films on vertical and horizontal faces of peds; thin continuous silt coatings on peds; common red iron-enriched bodies, as much as 2.5 centimeters in diameter; few, fine, black iron-manganese concretions; very strongly acid; gradual, wavy boundary.

Bx&A'2—18 to 25 inches, yellowish-brown (10YR 5/6) silty clay loam; common, fine, distinct, grayish-brown mottles; moderate, coarse, prismatic structure; firm and slightly brittle; common fine roots between peds; 20 percent grayish-brown silt tongues, as much as 1.5 centimeters wide; distinct discontinuous clay films on peds; common, medium, yellowish-red iron-enriched bodies; few, fine, black iron-manganese concretions; very strongly acid; gradual, wavy boundary.

Bx1—25 to 48 inches, yellowish-brown (10YR 5/6) silty clay loam; common, fine, distinct, gray mottles; moderate, coarse, prismatic structure, some prisms parting to weak, very coarse, subangular blocky; firm and brittle; common, fine, flat roots between peds; 25 percent gray silty clay loam veins, as much as 1.5 centimeters wide, between prisms; common, fine, brown and black iron-manganese concretions; strongly acid; gradual, wavy boundary.

Bx2—48 to 61 inches, yellowish-brown (10YR 5/6) silty clay loam and light grayish-brown silty clay loam veins, as much as 1.5 centimeters wide between prisms; weak, coarse, prismatic structure; firm; strongly acid.

The A horizon ranges from dark grayish brown to brown. It is 4 to 10 inches thick. The Bt horizon ranges from brown to yellowish brown and from silt loam to silty clay loam. In the upper 10 inches it has grayish-brown to light-gray mottles. Above the fragipan this horizon ranges from 6 to 24 inches in thickness. Depth to the fragipan ranges from 18 to 32 inches. The fragipan ranges from yellowish brown to brown, is mottled in shades of gray, and is as much as several feet thick. Reaction

ranges from medium acid to very strongly acid throughout the profile.

Olivier soils are associated with Calhoun, Frost, and Memphis soils, but they differ from those soils in having a fragipan. They are better drained than Calhoun and Frost soils. Olivier soils are more poorly drained than Memphis soils.

Olivier silt loam (Ov).—This somewhat poorly drained soil is on terrace uplands. It is loamy throughout, and the content of sand is very low. The areas range from 20 to 250 acres in size. Slopes are mainly 0.5 to 2 percent, but in a few places they range to 3 percent. Included in mapping are small areas of soils that lack a fragipan within 32 inches of the surface.

Natural fertility is somewhat low. Runoff is slow to medium. Plant roots penetrate easily to the fragipan. The fragipan restricts the growth of roots and slows the movement of water and air. This soil has a high water table perched within a depth of 3 feet from December through April.

Most of the acreage is used for pasture and crops. A small acreage is used for woodland and residential sites.

This soil is suited to most crops and pasture plants commonly grown in the parish. Suitable crops are corn, oats, soybeans, sweetpotatoes, and truck crops. Suitable pasture plants are common bermudagrass, Pensacola bahiagrass, Coastal bermudagrass, dallisgrass, carpetgrass, ryegrass, millet, white clover, and southern wild winter peas.

This soil is friable and fairly easy to keep in good tilth, but the surface tends to crust if the soil is clean tilled. Tilth can be improved and crusting can be reduced by plowing under crop residue and green manure crops. In areas where runoff is slow, surface drainage is needed for crops and pasture. Proper direction of rows and farming on the contour help control erosion. Land smoothing improves surface drainage. Crop response to fertilizer is fairly good, and lime generally is needed. For most uses the main limitation is moderate wetness. Capability unit IIw–5; woodland group 1w8.

Patoutville Series

The Patoutville series consists of somewhat poorly drained, slowly permeable soils that are loamy throughout and have a very low content of sand. These soils formed in loesslike material, more than 4 feet thick, on terrace uplands in the northern part of the parish.

In a representative profile the surface layer is dark grayish-brown silt loam about 7 inches thick. The subsoil is 36 inches thick. It is grayish-brown silty clay loam mottled in shades of brown and red in the upper part and in shades of brown and gray in the lower part. The underlying material is grayish-brown to gray silt loam.

Most of the acreage is used for pasture. A small acreage is used for cultivated crops, woodland, or residential sites.

In this parish Patoutville soils are mapped only in a complex with Deerford soils.

Representative profile of Patoutville silt loam, in an area of Deerford-Patoutville complex, in an idle field north of the city limits of Gonzales, 0.3 mile west of U.S. Highway 61, in SW¼NE¼NW¼ sec. 20, T. 9 S., R. 3 E.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam; few, fine, distinct, dark yellowish-brown mottles; weak, medium, subangular blocky structure; friable; medium acid; abrupt, wavy boundary.

B21t—7 to 19 inches, mottled, grayish-brown (10YR 5/2), yellowish-brown (10YR 5/6), and yellowish-red (5YR 5/6) silty clay loam; medium, coarse, prismatic structure parting to moderate, medium, subangular blocky; firm; prominent, nearly continuous, very dark gray clay films on peds; few fine iron-manganese concretions; medium acid; clear, wavy boundary.

B22t—19 to 31 inches, grayish-brown (10YR 5/2) and light olive-brown (2.5Y 5/4) silty clay loam; common, medium, prominent, yellowish-red (5YR 5/6) mottles and few, medium, distinct, dark-brown (7.5YR 4/4) mottles; moderate, coarse, prismatic structure parting to moderate, medium, subangular blocky; firm; thin, discontinuous, dark-brown and reddish-gray clay films on peds; common, fine, black iron-manganese concretions; slightly acid; clear, wavy boundary.

B3t—31 to 43 inches, grayish-brown (2.5Y 5/2) silty clay loam; many, coarse, distinct, yellowish-brown (10YR 5/6) mottles; weak, coarse, prismatic structure parting to weak, medium, subangular blocky; slightly firm; thin patchy clay films on peds; few, fine, black iron-manganese concretions; slightly acid; gradual, smooth boundary.

C1—43 to 52 inches, grayish-brown (10YR 5/2) silt loam; many, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, coarse, subangular blocky structure; friable; common fine pores; few, fine, black iron-manganese concretions; slightly acid; gradual, smooth boundary.

C2—52 to 65 inches, gray (10YR 5/1) silt loam; many, medium, distinct, dark yellowish-brown (10YR 4/4) mottles and few, medium, distinct, yellowish-brown (10YR 5/6) mottles; massive; friable; slightly acid.

The A1 or Ap horizon is dark grayish brown, grayish brown, or dark brown. Where present the A2 horizon is gray or grayish brown. The A horizon ranges from very strongly acid through medium acid. The B21t horizon is grayish brown or dark grayish brown. It has many or common mottles in shades of red or brown. It ranges from strongly acid through slightly acid. The B22t horizon and B3 horizon are dark grayish brown or grayish brown mottled in shades of brown and gray. These horizons are silt loam or silty clay loam. They range from medium acid through neutral. The C horizon ranges from gray through yellowish brown. It ranges from slightly acid through mildly alkaline.

Patoutville soils are associated with Calhoun, Olivier, Deerford, and Verdun soils. They are not so gray as Calhoun soils and have red mottles. They lack the fragipan that is characteristic of Olivier soils. Patoutville soils lack the high concentration of sodium, characteristic of Deerford and Verdun soils.

Sharkey Series

The Sharkey series consists of poorly drained, very slowly permeable soils. These soils formed in more than 3 feet of clayey sediment on the lower part of natural levees on the alluvial plain.

In a representative profile the surface layer is very dark grayish-brown clay about 9 inches thick. The subsoil is 35 inches thick. It is dark-gray and gray clay that has dark-brown and yellowish-brown mottles. The underlying material is gray clay.

About half the acreage is used for woodland. Most of the rest is used for pasture and cultivated crops.

Representative profile of Sharkey clay, in a pasture 0.8 mile north of Darrow, 100 feet west of the Darrow Oil Field Road, in the northeast corner of Spanish Land Grant, sec. 56, T. 10 S., R. 2 E.

Ap—0 to 3 inches, very dark grayish-brown (10YR 3/2) clay; weak, fine, subangular blocky structure; firm; slightly acid; abrupt, smooth boundary.

A1—3 to 9 inches, very dark grayish-brown (10YR 3/2) clay; few, fine, distinct, dark yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; neutral; clear, smooth boundary.

B21g—9 to 21 inches, dark-gray (10YR 4/1) clay; common, medium, distinct, dark-brown (7.5YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; cracks as much as 3.75 centimeters wide extend from the surface to a depth of 21 inches; mildly alkaline; clear, smooth boundary.

B22g—21 to 33 inches, dark-gray (5Y 4/1) clay; common, medium, distinct, dark-brown (7.5YR 4/4) and dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; firm; few slickensides that do not intersect; moderately alkaline; gradual, smooth boundary.

B3g—33 to 44 inches, gray (5Y 5/1) clay; common, fine, distinct, yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; few vertical slickensides that do not intersect; moderately aklaline; gradual, smooth boundary.

Cg—44 to 62 inches, gray (5Y 5/1) clay; common, medium, distinct, dark-brown (7.5YR 4/4) mottles; massive; firm; mildly alkaline.

The A horizon is dark-gray, dark grayish-brown, or very dark grayish-brown clay or silty clay loam. It ranges from 4 to 15 inches in thickness. It is medium acid through moderately alkaline. The B horizon is dark gray, gray, or olive gray and has few to many mottles in shades of brown. The upper part of the B horizon is slightly acid through moderately alkaline, and the lower part ranges from neutral through moderately alkaline. The C horizon has the same color and reaction ranges as the B horizon. In some profiles, silt loam or silty clay loam is below a depth of 36 inches.

Sharkey soils are associated with Commerce, Fausse, Tunica, and Vacherie soils. They are more poorly drained and contain more clay than Commerce soils. Sharkey soils differ from Fausse soils in having better drainage and in that cracks form to a depth of 20 inches or more below the surface in most years. They contain more clay in the lower horizons than Tunica soils. Sharkey soils are more poorly drained and contain more clay in the upper part of the B horizon than Vacherie soils.

Sharkey silty clay loam (Sa).—This poorly drained soil is on the lower part of natural levees on the alluvial plain. It has a profile similar to the one described as representative of the series, but the surface layer is dark grayish-brown silty clay loam about 12 inches thick and the subsoil is clay throughout. The areas range from 15 to 500 acres in size, and most of them are several hundred acres. Slopes are less than 1 percent. Included in mapping are small areas of Tunica and Commerce soils.

Natural fertility is high. Runoff is slow or very slow. Water moves very slowly through the clayey subsoil. This soil has a high water table perched within a depth of 1 foot from December through April. Wetness causes poor aeration and restricts root development. Some areas are flooded for short periods after heavy rain. The shrink-swell potential is very high, and cracks, about ½ inch wide and 20 or more inches deep, form in dry periods. When the soil is wet, it swells and the cracks seal over. The clayey subsoil is hard when dry, is sticky when wet, and is difficult to use as construction material.

Most of the acreage is used for crops and pasture. A small acreage is used for woodland. The main cultivated crops are sugarcane and soybeans.

This soil is moderately well suited to most cultivated crops and is well suited to most pasture plants, but wetness delays planting and harvesting in some years. Among the suitable crops are corn, truck crops, grain sorghum, sugarcane, and soybeans. Among the suitable pasture plants are common bermudagrass, dallisgrass, johnsongrass, tall fescue, white clover, southern wild winter peas, and Pensacola bahiagrass.

Good tilth is difficult to maintain, because the surface layer is silty clay loam. The soil can be worked only within a narrow range of moisture content without becoming cloddy. The moderately high clay content of the surface layer restricts use of farm equipment during wet periods. In places local flooding can damage crops. A surface drainage system is needed for cultivated crops and pasture. Most crops respond to nitrogen fertilizer. For most uses, the main limitation is severe wetness, but for foundations, the limitations are high plasticity and very high shrink-swell potential. Capability unit IIIw-2 woodland group 2w6.

Sharkey clay (Sc).—This poorly drained, clayey soil is on the lower part of natural levees on the alluvial plain. It has the profile described as representative of the series. The areas generally are large, and some of them are several thousand acres. Slopes are less than 1 percent. Included in mapping are small areas of Tunica and Commerce soils.

Natural fertility is high. Runoff is slow or very slow. Water moves very slowly through this soil. This soil has a high water table perched within a depth of 1 foot from December through April. Wetness causes poor aeration and restricts the growth of plant roots. Some areas are flooded after heavy rain, mainly by runoff from higher areas. The soil dries out more slowly than surrounding soils that have a surface layer of silty clay loam. The shrink-swell potential is very high, and cracks that are about ½ inch wide and 20 or more inches deep form in dry periods. When the soil is wet, it swells and seals over. It is hard when dry, is sticky when wet, and is difficult to use as construction material.

Most of the acreage is used for crops and pasture. The rest is mainly used for woodland. The main cultivated crops are sugarcane and soybeans.

This soil is moderately well suited to most of the cultivated crops and pasture grown in the parish. These include grain sorghum, oats, rice, sugarcane, and soybeans. Wetness can delay planting and harvesting. Among the suitable pasture plants are common bermudagrass, dallisgrass, johnsongrass, tall fescue, ryegrass, Pensacola bahiagrass, white clover, and southern wild winter peas.

Because the surface layer is clay, good tilth is difficult to maintain. The soil can be worked only within a narrow range of moisture content without becoming cloddy. The high clay content and wetness restrict the use of farm equipment after heavy rain. In places flooding causes some crop damage. A surface drainage system is needed for cultivated crops and pasture. Crop response to nitrogen fertilizer generally is good. For most uses the main limitation is severe wetness, but for foundations the limitations are high plasticity and very high shrink-swell potential. Capability unit IIIw–1; woodland group 2w6.

Sharkey clay, frequently flooded (Sf).—This poorly drained, frequently flooded, clayey soil is at low elevations on natural levees on the alluvial plain. It has a profile similar to the one described as representative of the series, but the surface layer is 11 inches thick and is dark gray in the lower part. Most areas range from 350 to 3,000 acres in size. Slopes are less than 0.5 percent. Included in mapping are small areas of Fausse soils and

some areas of soils at a higher elevation that are not subject to frequent flooding.

Natural fertility is high. Runoff is very slow. Water moves very slowly through the soil. This soil is frequently flooded with as much as 1½ feet of water, mainly in winter, in spring, and early in summer. It has a high water table perched within a depth of 1 foot from December through May. The shrink-swell potential is very high, and plasticity is high. Cracks, about ½ inch wide and 20 inches deep, form during dry periods and seal over in wet periods. This soil is hard when dry and sticky when wet, and as a result it is difficult to use as construction material.

All of this soil is in hardwood trees (fig. 6).

If this soil is protected from flooding by a system of levees and pumps, it is moderately well suited to most cultivated crops and pasture plants commonly grown in the parish. In its present state this soil is poorly suited to the economic production of most cultivated crops. Some higher areas, where flooding is less severe, can be managed for native grasses and clover if bushes and weeds are controlled and the soils are protected from overgrazing. Many of the higher areas are not readily accessible to farm equipment, and grazing is restricted during flooding. For most uses the main limitations are very severe wetness and flooding, but for foundations they are high plasticity, and very high shrink-swell potential. Capability unit Vw–1; woodland group 3w6.

Tunica Series

The Tunica series consists of poorly drained, very slowly permeable soils. These soils formed in clayey sediment underlain by loamy sediment. They are on the lower part of natural levees on the alluvial plain.

In a representative profile the surface layer is mainly dark-gray clay about 9 inches thick. The subsoil is gray clay to a depth of 28 inches. The underlying material is gray and grayish-brown silt loam and very fine sandy loam mottled in shades of brown.

Most of the acreage is used for crops and pasture.

Representative profile of Tunica clay in a sugarcane field 1 mile southwest of Lemannville, 200 feet east of farm road, in southern part of Spanish Land Grant, sec. 36, T. 11 S., R. 15 E.

Ap—0 to 3 inches, very dark grayish-brown (10YR 3/2) clay; weak, fine, subangular blocky structure; firm; neutral; abrupt, smooth boundary.

Ap2—3 to 9 inches, dark-gray (10YR 4/1) clay; few, fine, distinct, dark yellowish-brown mottles; weak, medium, subangular blocky structure; firm, plastic; mildly alkaline; clear, smooth boundary.

B21g—9 to 21 inches, gray (10YR 5/1) clay; common, fine and medium, distinct, dark yellowish-brown mottles; moderate, medium and coarse, subangular blocky structure; firm, plastic; few slickensides that do not intersect; mildly alkaline; clear, smooth boundary.

B22g—21 to 28 inches, gray (5Y 5/1) clay; common, medium, distinct, dark yellowish-brown (10YR 4/4) and strong-brown (7.5YR 5/6) mottles; weak, medium, subangular blocky structure; firm, plastic; mildly alkaline; abrupt, smooth boundary.

IIC1g—28 to 41 inches, grayish-brown (2.5Y 5/2) silt loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) and yellowish-brown (10YR 5/4) mottles; massive; friable; mildly alkaline; abrupt, smooth boundary.

Figure 6.—**Typical vegetation of hardwood trees and palmetto. The soil is Sharkey clay, frequently flooded.**

IIC2g—41 to 47 inches, grayish-brown (10YR 5/2) very fine sandy loam; many, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; massive; friable; mildly alkaline; abrupt, smooth boundary.

IIC3g—47 to 60 inches, gray (5Y 5/1) silt loam; few, fine, distinct, dark yellowish-brown mottles; massive; friable; faint bedding planes; mildly alkaline.

The A horizon is very dark grayish brown, dark gray, or dark grayish brown and is 4 to 9 inches thick. The B horizon is gray, dark gray, dark grayish brown, or olive gray and has few to many brownish mottles. Depth to the IIC horizon ranges from 20 to 36 inches. The IIC horizon is similar in color to the B horizon. It is silt loam or very fine sandy loam. Thin strata of silty clay loam are within the IIC horizon in some places. The A horizon ranges from slightly acid through mildly alkaline, and the B horizon ranges from neutral through moderately alkaline, and the IIC horizon is mildly alkaline or moderately alkaline.

Tunica soils are associated with Commerce and Sharkey soils. They are more poorly drained and have more clayey A and B horizons than Commerce soils. Tunica soils contain less clay in the lower horizons than Sharkey soils.

Tunica clay (Tu).—This poorly drained soil is on natural levees on the alluvial plain. It is clayey in the surface layer and upper part of the subsoil and loamy in the lower part of the subsoil. The areas range from 10 to 50 acres in size. Slopes are less than 1 percent. Included in mapping are some areas of Sharkey soils.

Natural fertility is high. Runoff is slow or very slow. Water moves very slowly through the soil. This soil has a high water table perched within a depth of 2 feet from December through April. Wetness causes poor aeration and restricts the growth of plant roots. Some areas are flooded after heavy rain by runoff from higher areas. This soil has a very high shrink-swell potential. Cracks that are about ½ inch wide and about 20 inches deep form during dry periods and seal over during wet periods. This soil is hard when dry and sticky when wet; it is difficult to use as construction material.

Most of the acreage is used for crops and pasture. The rest is used for woodland.

This soil is moderately well suited to most of the cultivated crops and pasture plants commonly grown in the parish. These include grain sorghum, oats, rice, sugarcane, and soybeans. Planting can be delayed unless adequate surface drainage is provided. Among the suitable pasture plants are common bermudagrass, dallisgrass, johnsongrass, tall fescue, Pensacola bahiagrass, white clover, and southern wild winter peas.

Because the surface layer has a high content of clay, good tilth is difficult to maintain. This soil can be worked only within a narrow range of moisture content without becoming cloddy. The high clay content in the surface layer restricts the use of farm equipment after heavy rain. In places, flooding can damage crops. A surface drainage system is needed for cultivated crops and pasture. Crop response to nitrogen fertilizer generally is good, but lime and other fertilizers generally are not needed. For most uses the main limitation is severe wetness, but for foundations the limitations are high plasticity and very high shrink-swell potential. Capability unit IIIw–1; woodland group 2w6.

Vacherie Series

The Vacherie series consists of somewhat poorly drained, very slowly permeable soils. These soils formed in loamy over clayey sediment on the natural levees on the alluvial plain.

In a representative profile the surface layer is grayish-brown and dark grayish-brown silt loam about 13 inches thick. The subsoil is grayish-brown very fine sandy loam 13 inches thick. The underlying material is dark-gray clay. The subsoil and the underlying material are mottled in shades of brown and gray.

Most of the acreage is used for cultivated crops.

Representative profile of Vacherie silt loam in a sugarcane field 0.5 mile east of Darrow, 600 feet north of State Highway 942, in the south-central part of Spanish Land Grant, sec. 14, T. 11 S., R. 2 E.

Ap1—0 to 7 inches, grayish-brown (10YR 5/2) silt loam; moderate, medium, granular structure and weak, fine, subangular blocky structure; friable; slightly acid; abrupt, smooth boundary.

Ap2—7 to 13 inches, dark grayish-brown (10YR 4/2) silt loam; common, fine, faint, dark yellowish-brown mottles; moderate, coarse, subangular blocky structure; friable; mildly alkaline; abrupt, smooth boundary.

B21—13 to 21 inches, grayish-brown (10YR 5/2) very fine sandy loam; few, fine, distinct, dark yellowish-brown mottles; weak, medium, subangular blocky structure; very friable; moderately alkaline; abrupt, smooth boundary.

B22—21 to 26 inches, grayish-brown (10YR 5/2) very fine sandy loam; many, medium, distinct, yellowish-brown (10YR 5/4) mottles; weak, medium, subangular blocky structure; very friable; moderately alkaline; abrupt, smooth boundary.

IIAbg—26 to 39 inches, dark-gray (10YR 4/1) clay; many, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, coarse, subangular blocky structure; firm plastic; moderately alkaline; abrupt, smooth boundary.

IIC1g—39 to 52 inches, dark-gray (10YR 4/1) clay; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; massive; firm, plastic; moderately alkaline; abrupt, smooth boundary.

IIC2g—52 to 64 inches, dark-gray (10YR 4/1) clay; many, medium, distinct, strong-brown (7.5YR 5/6) mottles; massive; firm, plastic; moderately alkaline.

The A horizon is grayish brown, dark grayish brown, or dark gray and is 6 to 13 inches thick. It ranges from slightly acid through mildly alkaline. The B horizon is grayish-brown or dark grayish-brown silt loam or very fine sandy loam. It has few to common mottles in shades of brown. It ranges from neutral through moderately alkaline. Depth to the IIAbg or IIBbg horizon ranges from 15 to 36 inches. The IIAbg or IIBbg horizon is dark-gray or gray clay or silty clay mottled in shades of brown. It is mildly alkaline or moderately alkaline.

Vacherie soils are associated with Commerce, Convent, and Sharkey soils. They have a higher clay content in the lower part of the B horizon and in the C horizon than Commerce and Convent soils. Vacherie soils are better drained and are less clayey in the A horizon and upper part of the B horizon than Sharkey soils.

Vacherie silt loam (Va).—This somewhat poorly drained soil is on natural levees on the alluvial plain. It is loamy in the upper layers and clayey in the lower layers. The areas range from 10 to 75 acres in size. Slopes are 0 to 1 percent. Included in mapping are small areas of Commerce soils.

Natural fertility is high. Runoff is slow. Plant roots penetrate easily. Water and air move moderately fast through the upper layers of this soil; the lower part of the subsoil is clayey, however, and slows the movement of water. This soil has a high water table perched within a depth of 3 feet from December through April. Wetness in the lower part of the subsoil causes poor aeration and restricts the growth of roots on some deep-rooted plants.

Water stands in depressions for short periods after heavy rain, mainly in winter and spring.

Most of the acreage is used for sugarcane and soybeans.

This soil is well suited to cultivated crops and pasture plants commonly grown in the parish. Suitable crops are corn, oats, truck crops, and most varieties of sugarcane and soybeans. Suitable pasture plants are common bermudagrass, dallisgrass, Pensacola bahiagrass, johnsongrass, ryegrass, white clover, and southern wild winter peas.

This soil is friable and easy to keep in good tilth. Traffic pans form easily but can be broken by chiseling or deep plowing. A surface drainage system is needed for optimum growth of most cultivated crops. Land smoothing and leveling improve surface drainage and increase the efficiency of farm equipment. Deep cutting, however, may expose clayey layers. Crop response to nitrogen fertilizer is good; other fertilizers and lime generally are not needed. For most uses, the main limitation is moderate wetness. Capability unit IIw–1; woodland group 1w5.

Verdun Series

The Verdun series consists of somewhat poorly drained, very slowly permeable soils that are loamy throughout and have a very low content of sand. These soils have a subsoil that has high sodium saturation. They formed in loesslike material more than 4 feet thick. They are on terrace uplands in the northern part of the parish.

In a representative profile the surface layer is grayish-brown silt loam about 4 inches thick. The subsoil, in the upper 23 inches, is mainly light olive-brown silty clay loam mottled in shades of brown and gray. In the lower 15 inches it is yellowish-brown silt loam mottled in grayish brown. The underlying material is yellowish-brown silt loam mottled with grayish brown.

Most of the acreage is used for pasture. Some is used for woodland, and a small acreage is used for cultivated crops or residential sites.

In this parish Verdun soils are mapped only in a complex with Deerford soils.

Representative profile of Verdun silt loam, in an area of Deerford-Verdun complex, in a pasture 2.2 miles west of Brignac, 150 feet north of State Highway 621, in SW¼SE¼-SE¼ sec. 9, T. 9 S., R. 3 E.

Ap—0 to 4 inches, grayish-brown (10YR 5/2) silt loam; few, fine, distinct, dark yellowish-brown mottles; weak, fine, subangular blocky structure; friable; many fine roots; few, fine, black iron-manganese concretions; slightly acid; abrupt, irregular boundary.

B2t&A2—4 to 9 inches, dark-brown (10YR 4/3) and dark grayish-brown (10YR 4/2) silty clay loam; few, fine, distinct, yellowish-brown mottles; moderate, medium, prismatic structure parting to moderate, medium, subangular blocky; firm; few fine roots; continuous very dark gray clay films on peds; about 35 percent is tongues of grayish-brown and light brownish-gray silt loam; few, fine, black iron-manganese concretions; mildly alkaline; clear, wavy boundary.

B21t—9 to 20 inches, light olive-brown (2.5Y 5/4) silty clay loam; common, medium, faint, yellowish-brown (10YR 5/4) mottles; moderate, medium, prismatic structure; firm; common fine roots on ped surfaces; continuous dark gray clay films on peds; silt coatings on peds as much as 1 millimeter thick; few, fine, black iron-manganese concretions; moderately alkaline; clear, smooth boundary.

B22t—20 to 27 inches, light olive-brown (2.5Y 5/6) silty clay loam; common, medium, distinct, dark grayish-brown, grayish-brown, and strong-brown mottles; weak, medium, prismatic structure; firm; few fine roots matted in vertical cracks; thin, discontinuous, dark grayish-brown clay films on peds; many medium calcium carbonate concretions; few, fine, black iron-manganese concretions; moderately alkaline; clear, smooth boundary.

B3t—27 to 42 inches, yellowish-brown (10YR 5/4) silt loam; few, fine, distinct, grayish-brown mottles; massive; friable; few thickly matted roots in cracks; few, thin, dark grayish-brown clay films in pores; common medium calcium carbonate concretions; few, fine, black iron-manganese concretions; moderately alkaline; gradual, smooth boundary.

C—42 to 60 inches, yellowish-brown (10YR 5/4) silt loam; few, fine, distinct, grayish-brown mottles; massive; friable; few medium calcium carbonate concretions; few, fine, black iron-manganese concretions; moderately alkaline.

The A1 or Ap horizon is grayish brown, dark grayish brown, or dark brown. The A2 horizon, which typically occurs as tongues in the upper part of the B horizon, is grayish brown, gray, or light brownish gray. The A horizon ranges from 2 to 6 inches in thickness. It is medium acid through mildly alkaline. The B part of the B&A horizon is dark grayish brown, dark brown, dark gray, or grayish brown mottled in shades of brown and gray. The B21t horizon and B22t horizon are yellowish brown, light olive brown, brown, or olive brown mottled in shades of brown and gray. The B2t horizon is neutral through moderately alkaline. The B3t horizon and C horizon are light olive brown or yellowish brown mottled in shades of brown and gray. They are moderately alkaline or strongly alkaline.

Verdun soils are associated with Calhoun, Foley, Frost, Deerford, and Acy soils. They are better drained and are more alkaline than Calhoun, Foley, and Frost soils. Also, they are more alkaline than Deerford soils. Verdun soils have a high sodium content throughout their Bt horizon. Acy and Frost soils do not have this high sodium content, and Deerford and Foley soils have a high sodium content only in the lower part of their Bt horizon.

Use and Management of the Soils

This section describes the use and management of the soils in Ascension Parish for crops and pasture, woodland, and wildlife habitat. It explains the system of capability classification used by the Soil Conservation Service and gives estimated yields per acre of the principal crops. The properties and features that affect engineering practices are listed, mainly in tables.

Crops and Pasture

General principles of soil management for crops and pasture are given in the paragraphs that follow.

Fertilizing and liming.—The soils of Ascension Parish range from very strongly acid to strongly alkaline. Most soils that are used for crops are low in content of organic matter and in available nitrogen. Commerce, Convent, Sharkey, Tunica, and Vacherie soils are alkaline soils that ordinarily need only nitrogen fertilizer if they are used for crops other than legumes. Most of these soils are moderate to high in phosphorus, potassium, and calcium. Some of the Acy, Essen, Jeanerette, and Verdun soils need lime, and all need phosphorus, potassium, and nitrogen. The rest of the soils in the parish that are used for crops ordinarily need to be limed and to be fertilized with phosphorus, potassium, and nitrogen. The need for fertilizer and lime should be determined by soil tests.

Maintaining organic-matter content.—Organic matter is an important source of nitrogen, and it also helps to increase the rate of water intake, reduce surface crusting, and improve tilth. Most soils in the parish that are used for crops are low in organic-matter content. The content of organic matter can be maintained by growing crops that produce an extensive root system and an abundance of foliage, by leaving plant residue on the surface (fig. 7), by growing perennial grasses and legumes in rotation with other crops, and by adding manure.

Tillage.—Soils should be tilled only enough to prepare a seedbed and to control weeds. Excessive tillage destroys the structure of the soil. The fine-textured soil forms clods when plowed at certain moisture content. A compact layer or traffic pan forms in some soils if they are cultivated. Deep plowing or chiseling helps to break this pan. The soils can be protected from beating rain by using tillage implements that stir the surface and leave crop residue on top. This residue helps to reduce surface crusting, to slow runoff, to increase infiltration, and to control erosion.

Drainage and flood control.—Surface drainage is needed on most soils in the parish, if the soils are to be more suitable for crops. The soils at a higher elevation on the natural levees are drained by a gravity drainage system that consists of a series of mains, laterals, and split ditches. The soils in other high areas in the parish are also drained by a gravity drainage system, but this system consists of row drains, row arrangement, and field drains. The success of these systems depends on the availability of drainage outlets, but many parts of the parish lack adequate outlets. Another method used to improve drainage is land leveling and smoothing. These practices consist of precision leveling to a uniform grade. Grading improves surface drainage, eliminates cross ditches, makes longer rows possible, and this increases efficieney of farm equipment. Care should be taken on Deerford, Foley, and Verdun soils not to expose layers that have a high content of sodium. A main levee system along the river protects the entire parish from flooding by the Mississippi River. A significant acreage at a low elevation, however, is flooded from local accumulation of water, levees and pumps are needed to drain most of these areas.

Capability grouping

Capability grouping shows, in a general way, the suitability of soils for most kinds of field crops. The groups are made according to the limitations of the soils when used for field crops, the risk of damage when they are so used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops requiring special management.

Those familiar with the capability classification can infer from it much about the behavior of soils when used for other purposes, but this classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forest trees or engineering.

***Figure 7.*—Plant residue from harvested sugarcane helps to maintain the organic-matter content. The soil is Commerce silty clay loam.**

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

CAPABILITY CLASSES, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. In class I are soils that have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other classes have progressively greater natural limitations. In class VIII are soils and landforms so rough, so shallow, or otherwise so limited that they do not produce worthwhile yields of crops, forage, or wood products.

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

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

CAPABILITY UNITS are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIw–2 or IIIs–1. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, defined in the foregoing paragraphs; and the Arabic numeral specifically identifies the capability unit within each subclass.

The eight classes in the capability system and the subclasses and units in Ascension Parish are described in the list that follows. To find the capability classification of any given soil, refer to the "Guide to Mapping Units." Use and management of each soil are given in the section "Descriptions of the Soils."

Class I soils have few limitations that restrict their use. (None of the soils in Ascension Parish have been placed in class I.)

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

Subclass IIw.—Soils have moderate limitations because of excess water.

Unit IIw–1.—Somewhat poorly drained, nearly level soils that have a surface layer of silt loam and a weakly developed or undeveloped subsoil.

Unit IIw–2.—Somewhat poorly drained, nearly level soils that have a surface layer of silt loam and a moderately developed subsoil.

Unit IIw–3.—Somewhat poorly drained, nearly level soils that have a surface layer of silty clay loam and a weakly developed subsoil.

Unit IIw–4.—Somewhat poorly drained, nearly level soils that have a surface layer of silty clay loam and a moderately developed subsoil.

Unit IIw–5.—Somewhat poorly drained, very gently sloping, loamy soils that have dominantly a medium acid to very strongly acid surface layer.

Unit IIw–6.—Poorly drained and somewhat poorly drained, nearly level, loamy soils that in most places have a medium acid to mildly alkaline surface layer.

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

Subclass IIIw.—Soils have severe limitations because of excess water.

Unit IIIw–1.—Poorly drained, level soils that have a clayey surface layer and a clayey subsoil.

Unit IIIw–2.—Poorly drained, level soils that have a loamy surface layer and a clayey subsoil.

Unit IIIw–3.—Poorly drained, nearly level, loamy soils.

Unit IIIw–4.—Poorly drained, nearly level, loamy soils that have a high sodium content in the lower part of the subsoil.

Subclass IIIs.—Soils have severe limitations because of excess sodium in the subsoil.

Unit IIIs–1.—Somewhat poorly drained, nearly level, loamy soils that have a high sodium content in the subsoil.

Class IV soils have very severe limitations that restrict the choice of plants, require very careful management, or both. (None of the soils in Ascension Parish have been placed in Class IV.)

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use largely to pasture, woodland, or wildlife habitat.

Subclass Vw.—Soils have severe limitations because of frequent flooding.

Unit Vw–1.—Frequently flooded, poorly drained, level, clayey soils.

Unit Vw–2.—Frequently flooded, somewhat poorly drained, nearly level to very gently sloping, loamy soils.

Class VI soils have severe limitations that make them generally unsuitable for cultivation and that limit their use largely to pasture, woodland, or wildlife habitat.

Subclass VIe.—Soils that are limited chiefly by risk of erosion and steepness.

Unit VIe–1.—Strongly sloping, well-drained, loamy soils.

Class VII soils have very severe limitations that make them unsuitable for cultivation without major reclamation and that restrict their use largely to pasture, woodland, or wildlife habitat.

Subclass VIIw.—Soils that have very severe limitations because of an almost continuous high water table and the frequency of flooding.

Unit VIIw–1.—Frequently to nearly continuously flooded, very poorly drained, level, clayey soils and somewhat poorly drained, very gently sloping, loamy soils.

Class VIII soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, or water supply or to esthetic purposes. (None of the soils in Ascension Parish have been placed in class VIII.)

Predicted yields

Table 2 lists predicted yields of the principal crops grown in the parish. The predictions are based on estimates made by farmers, soil scientists, and others who have knowledge of yields in the parish and on information taken from research data. The predicted yields are average yields per acre that can be expected under good commercial farming at a level of management that tends to produce the highest economic returns. Crops other than those shown in table 2 are grown in the parish, but their predicted yields are not included because their acreage is small or reliable data on yields are not available.

The predicted yields shown in table 2 can be expected if (1) rainfall is effectively used and conserved; (2) surface drainage systems are installed; (3) crop residue is managed to maintain soil tilth; (4) minimum but timely tillage is used; (5) insects, plant diseases, and weeds are consistently controlled; (6) fertilizer is applied according to results of soil tests and the needs of the crop; and (7) adapted crop varieties are seeded at recommended rates.

Woodland [2]

Originally Ascension Parish was mainly wooded. Now trees cover about 48 percent of the parish. Some good stands of commercial trees are produced in the woodlands of the parish. Loblolly pine occurs only in small tracts in the northeast part of the parish, and southern hardwoods predominate in the rest of the parish.

The value of wood products is substantial, but it is far below its potential. Among other uses for woodland are wildlife habitat, recreation, natural beauty, grazing in areas of needleleaf forest, and conservation of soil and

[2] H. Ford Fallin, woodland conservationist, Soil Conservation Service, Alexandria, Louisiana, helped to prepare this section.

Table 2.—*Predicted average acre yields of principal crops and pasture plants*

[Absence of data indicates crop is not suited to the soil or is not commonly grown on the soil]

Soil	Crops			Pasture		
	Sugarcane	Corn	Soybeans	Common bermudagrass	Pensacola bahiagrass	Tall fescue
	Tons	*Bu*	*Bu*	*AUM*[1]	*AUM*[1]	*AUM*[1]
Acy silt loam		80	35	7.0	8.0	
Barbary association						
Calhoun silt loam		60	30	5.5	6.0	7.0
Commerce silt loam	35	90	40	8.5	8.5	
Commerce silty clay loam	35	80	40	8.0	8.5	9.0
Convent silt loam	33	90	40	8.0	8.5	
Convent soils, frequently flooded				8.0	8.5	
Deerford-Patoutville complex:						
Deerford soil		65	30	5.5	5.5	
Patoutville soil		65	30	6.0	6.5	
Deerford-Verdun complex:						
Deerford soil		65	30	5.5	5.5	
Verdun soil			19	4.5	5.0	
Essen silt loam	32	90	30	7.0	8.0	
Fausse association						
Fausse-Galvez association:						
Fausse soil						
Galvez soil						
Foley-Deerford complex:						
Foley soil		60	30	6.0	6.5	6.5
Deerford soil		65	30	5.5	5.5	
Frost silt loam		60	30	5.5	6.0	7.0
Galvez silt loam	32	90	35	7.0	8.0	8.0
Galvez silty clay loam	32	90	35	7.0	8.0	8.0
Jeanerette silt loam		80	35	7.0	7.5	8.0
Memphis complex, 5 to 30 percent slopes				6.0	5.4	
Olivier silt loam		65	30	6.0	6.5	
Sharkey silty clay loam	32	60	35	7.5	7.5	9.0
Sharkey clay	30	60	35	7.0	7.5	8.5
Sharkey clay, frequently flooded						
Tunica clay	32	60	35	7.0	7.5	8.5
Vacherie silt loam	33	85	40	8.0	8.5	

[1] Animal-unit-month is a term used to express the carrying capacity of pasture. It is based on the amount of forage required to feed a 1,000-pound animal for one month (equivalent to 600 pounds of hay).

water. This section discusses the effect of soils on growth and management of trees.

Suitability of the soils for woodland is given in table 3. The soils are listed by their mapping unit symbols under the series name to which they belong. If a mapping unit contains the name of two series, as in a complex or an association, the component soils are listed and evaluated separately under each series name. In the column "woodland group," each group is made up of soils that are suited to the same kinds of trees, that need about the same kind of management to produce the trees, and that have about the same potential productivity.

Each woodland group is identified by a three-part symbol. The first part indicates the relative productivity of the soils: 1 means very high; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a lowercase letter, indicates the important soil property that imposes a moderate or severe hazard or limitation in managing the soils for wood production. The letter *w* shows that excessive water in or on the soil is the chief limitation; *t* shows that toxic substances in the soil is the chief limitation; *r* shows the soils are steep; and *o* shows the soils have no significant restrictions or limitations for woodland use or management.

TABLE 3.—*Suitability of*

Soil series and map symbols	Woodland group	Potential productivity		
		Important trees	Site index	Important understory plants (medium canopy)
Acy: Ac	2w5	Green ash	80	Grazing not recommended
		Eastern cottonwood	(1)	
		Water oak	(1)	
		Sweetgum	90	
		Cherrybark oak	90	
Barbary: BA	4w6	Baldcypress	(1)	Grazing not recommended
		Water tupelo	60	
		Black willow	(1)	
Calhoun: Ca	2w9	Cherrybark oak	(1)	Uniolas, pinehill bluestem, rushes, and sedges.
		Loblolly pine	90	
		Slash pine	(1)	
		Sweetgum	90	
Commerce: Cm,Co	1w5	Green ash	80	Grazing not recommended
		Eastern cottonwood	120	
		Nuttall oak	90	
		Water oak	120	
		Pecan	(1)	
		American sycamore	(1)	
Convent:				
Cs	1w5	Green ash	(1)	Grazing not recommended
		Eastern cottonwood	120	
		Sweetgum	110	
		American sycamore	(1)	
		Pecan	(1)	
CV [3]	1w6	Green ash	(1)	Grazing not recommended
		Eastern cottonwood	110	
		Sweetgum	100	
		American sycamore	(1)	
Deerford: Dp, Dv For Patoutville soil in Dp and Verdun soil in Dv, refer to its respective series.	2w8	Sweetgum	90	Uniolas, pinehill bluestem, rushes, and sedges.
		Loblolly pine	90	
		Slash pine	(1)	
		Water oak	80	
Essen: Es	1w8	Nuttall oak	100	Uniolas, pinehill bluestem, sedges, and rushes.
		Loblolly pine	100	
		Sweetgum	100	
		Slash pine	100	
		Cherrybark oak	100	
Fausse: FA, FG For Galvez soil in FG, refer to Galvez series.	3w6	Green ash	70	Grazing not recommended
		Baldcypress	(1)	
		Pecan	(1)	
		Water tupelo	(1)	

See footnotes at end of table.

The third element in the symbol indicates the degree of management concerns and the general suitability of the soils for certain kinds of trees.

The numeral 1 indicates soils that have no or slight management concerns and that are best suited to needleleaf trees.

The numeral 2 indicates soils that have one or more moderate management concerns and that are best suited to needleleaf trees.

The numeral 3 indicates soils that have one or more severe management concerns and that are best suited to needleleaf trees.

The numeral 4 indicates soils that have no or slight management concerns and that are best suited to broadleaf trees.

The numeral 5 indicates soils that have one or more moderate management concerns and that are best suited to broadleaf trees.

The numeral 6 indicates soils that have one or more severe management concerns and that are best suited to broadleaf trees.

The numeral 7 indicates soils that have no or slight management concerns and that are suited to either needleleaf or broadleaf trees.

soils for woodland

Potential productivity—Con.	Management problems			Preferred trees for planting
Total yield of understory plants	Erosion hazard	Equipment limitations	Seedling mortality	
Lb per acre				
	Slight	Moderate	Slight	Sweetgum, eastern cottonwood, American sycamore.
	Slight	Severe	Severe	(2).
900	Slight	Severe	Moderate	Cherrybark oak, loblolly pine, slash pine, sweetgum.
	Slight	Moderate	Slight	Eastern cottonwood, American sycamore.
	Slight	Moderate	Slight	Eastern cottonwood, American sycamore, sweetgum.
	Slight	Moderate to severe	Slight to severe	American sycamore, sweetgum, green ash, eastern cottonwood.
1, 100	Slight	Moderate	Slight	Sweetgum, loblolly pine, slash pine.
900	Slight	Moderate	Slight	Loblolly pine, slash pine, sweetgum.
	Slight	Severe	Severe	Green ash, baldcypress, Nuttall oak.

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TABLE 3.—*Suitability of*

Soil series and map symbols	Woodland group	Potential productivity		
		Important trees	Site index	Important understory plants (medium canopy)
Foley: Fo For Deerford soil in Fo, refer to Deerford series.	3w9	Sweetgum Cherrybark oak Water oak Loblolly pine	80 80 80 60	Uniolas, pinehill bluestem, sedges, and rushes.
Frost: Fr	2w9	Cherrybark oak Water oak Loblolly pine Slash pine Sweetgum	(1) (1) 90 90 (1)	Uniolas, pinehill bluestem, sedges, and rushes.
Galvez: Ga, Gb	2w5	Pecan Sugarberry Green ash Nuttall oak American sycamore Sweetgum Eastern cottonwood	(1) (1) 80 90 (1) 90 110	Grazing not recommended
Jeanerette: Je	2w5	Green ash Eastern cottonwood Water oak Sweetgum Cherrybark oak American sycamore	80 (1) (1) 90 90 (1)	Grazing not recommended
Memphis: MeE. Areas where slopes are 5 to 17 percent	2o7	Cherrybark oak Loblolly pine Sweetgum Water oak	90 90 90 90	Uniolas, pinehill bluestem, sedges, and rushes.
Areas where slopes are 17 to 30 percent	2r8	Water oak Loblolly pine Sweetgum Yellow-poplar	90 90 90 (1)	Uniolas, pinehill bluestem, sedges, and rushes.
Olivier: Ov	1w8	Loblolly pine Slash pine Sweetgum Water oak Cherrybark oak	100 100 90 (1) 90	Uniolas, pinehill bluestem, rushes, and sedges.
Patoutville Mapped only in complex with the Deerford soils.	1w8	Loblolly pine Slash pine Sweetgum Water oak Cherrybark oak	100 100 90 (1) 90	Uniolas, pinehill bluestem, rushes, and sedges.
Sharkey: Sa, Sc	2w6	Green ash Eastern cottonwood Cherrybark oak Sweetgum Water oak Pecan American sycamore	80 100 90 90 (1) (1) (1)	Grazing not recommended
Sf	3w6	Green ash Eastern cottonwood Nuttall oak Pecan Water oak	70 90 80 (1) (1)	Grazing not recommended

See footnotes at end of table.

soils for woodland—Continued

Potential productivity—Con.	Management problems			Preferred trees for planting
Total yield of understory plants	Erosion hazard	Equipment limitations	Seedling mortality	
Lb per acre 900	Slight	Severe	Moderate	Sweetgum, American sycamore, loblolly pine.
900	Slight	Severe	Moderate	Cherrybark oak, loblolly pine, slash pine, sweetgum.
	Slight	Moderate	Slight to moderate	Sweetgum, eastern cottonwood, American sycamore.
	Slight	Slight	Moderate	Green ash, eastern cottonwood, sweetgum, water oak, American sycamore.
1, 000	Slight	Slight	Slight	Cherrybark oak, loblolly pine, sweetgum, American sycamore.
1, 000	Slight	Slight	Slight	Cherrybark oak, loblolly pine, sweetgum, American sycamore.
1, 000	Slight	Moderate	Slight	Loblolly pine, slash pine, sweetgum, water oak, cherrybark oak.
1, 000	Slight	Moderate	Slight	Loblolly pine, slash pine, sweetgum, water oak, cherrybark oak.
	Slight	Severe	Severe	Green ash, eastern cottonwood, cherrybark oak, water oak, sweetgum, American sycamore.
	Slight	Severe	Severe	Green ash, eastern cottonwood, Nuttall oak, sweetgum.

TABLE 3.—*Suitability of*

Soil series and map symbols	Woodland group	Potential productivity		
		Important trees	Site index	Important understory plants (medium canopy)
Tunica: Tu	2w6	Green ash	80	Grazing not recommended
		Eastern cottonwood	100	
		Cherrybark oak	90	
		Nuttall oak	90	
		Sweetgum	90	
Vacherie: Va	1w5	Green ash	80	Grazing not recommended
		Eastern cottonwood	120	
		Sweetgum	110	
		American sycamore	(1)	
Verdun	3t9	Loblolly pine	80	Not determined
Mapped only in complex with Deerford soils.		Slash pine	(1)	
		Sweetgum	(1)	
		Water oak	(1)	

[1] Insufficient data collected to estimate site index for this species.
[2] No species of trees is preferred for planting on these soils.

The numeral 8 indicates soils that have one or more moderate management concerns and that are suited to either needleleaf or broadleaf trees.

The numeral 9 indicates soils that have one or more severe management concerns and that are suited to either needleleaf or broadleaf trees.

The numeral 0 indicates soils that are not suitable for the production of major commercial wood products. None of the soils in Ascension Parish have been placed in woodland groups in management concern categories of 1, 2, 3, 4, and 0.

Important trees listed are some of those that are of commercial value and are suited to the soil. They are trees that woodland managers generally favor in intermediate or improvement cuttings.

The potential productivity of these trees is given in terms of site index. The index is the average height of dominant trees, in feet, at age 30 for cottonwood; at age 35 for sycamore; and at age 50 for all others.

Important understory plants are grasses, legumes, forbs, and low shrubs under a medium or 36 to 55 percent canopy. These plants can be grazed by cattle, under proper management, to supplement a woodland enterprise and not damage the wood crop. The total yield of understory plants is expressed in pounds of air-dry forage per acre to be expected in normal years when woodland forage is in good condition. Grazing is not a suitable practice in hardwood forests; therefore, yield data are not provided for soils suited only to hardwoods. The principal forage plants listed are those of the climax vegetation.

Erosion hazard measures the risk of soil losses in well-managed woodland. Erosion hazard is *slight* if expected soil loss is small, *moderate* if some measures to control erosion are needed in logging and construction, and *severe* if intensive treatment or special equipment and methods are needed to prevent excessive soil losses.

The equipment limitation reflects the soil conditions that restrict the use of equipment normally used in woodland management or harvesting. *Slight* indicates that the use of equipment is not limited to kind of equipment or time of year. *Moderate* indicates a seasonal limitation or a need for modification in methods or equipment. *Severe* indicates the need for specialized equipment or operations.

Seedling mortality indicates the degree of expected loss of planted seedlings when plant competition is not a limiting factor. Normal rainfall, good planting stock, and proper planting are assumed. *Slight* indicates that the expected mortality is less than 25 percent. *Moderate* indicates a loss of 25 to 50 percent; and *severe* indicates a loss of more than 50 percent of the seedlings.

In the last column are listed trees that are suitable for planting for commercial wood production.

Wildlife Habitat[3]

The soils of Ascension Parish furnish suitable habitat and food for many kinds of wildlife. The available habitat for each of these is dependent on the types of plants that the soil can produce and man's treatment of the land and vegetation. Because of their use, some soils of this parish never produce a significant crop of wildlife, but others produce continuing crops of game animals and birds.

Soils directly influence the kinds and amounts of vegetation and amount of water available and in this way indirectly influence the kinds of wildlife that can live in an area. Soil properties that affect the growth of wildlife habitat are thickness of soil useful to crops, surface texture, available water capacity, wetness, flood hazard, slope, and permeability to air and water.

[3] RAY SMITH, JR., biologist, Soil Conservation Service, Alexandria, La., helped prepare this section.

soils for woodland—Continued

Potential productivity—Con.	Management problems			Preferred trees for planting
Total yield of understory plants	Erosion hazard	Equipment limitations	Seedling mortality	
Lb per acre				
----------	Slight----------	Severe----------	Moderate----------	Green ash, eastern cottonwood, cherrybark oak, Nuttall oak, sweetgum, American sycamore.
----------	Slight----------	Moderate----------	Slight----------	Eastern cottonwood, sweetgum, American sycamore.
----------	Slight----------	Moderate----------	Severe----------	Slash pine, loblolly pine.

[3] Equipment limitation and seedling mortality will vary depending on the frequency, depth, and duration of flooding, and the amount of scouring and deposition.

The most important birds and fur-bearing animals in this parish are ducks, doves, quail, squirrels, deer, rabbits, raccoon, nutria, and minks. The important species of fish are black or largemouth bass, crappie or sac-a-lait, bluegill, shell cracker, chain pickerel, and bar fish (white bass).

Such ducks as mallards and wood ducks are in this area. The swamps of Blind River and the McElroy swamp are the areas of greatest concentration of these birds. These areas also provide nesting places for the wood duck in spring and early summer. Doves are rarely found in large numbers. The cornfields around Geismar and Dutch Town attract most of the birds passing over this parish. Quail inhabit this parish in limited numbers because of a lack of suitable habitat.

Squirrels are fairly abundant throughout most of the parish. Rabbits are almost as abundant as squirrels. The deer population is quite low, but recent stocking near the Sorrento Gas and Oil Field should improve the population. Raccoon are rather plentiful. Nutria and minks are fairly abundant.

Three major lakes are entirely within the parish, and part of one larger lake is in the parish. Lake Martin, Lake Villars, and Lake Flat are along the Amite River in the northeast corner of the parish. Part of Spanish Lake is in the northwest corner of this parish. These lakes provide a moderate amount of fishing. The fish most commonly caught are largemouth bass, crappie or sac-a-lait, bluegill, shell cracker, chain pickerel, and bar fish or white bass. Commercial fish, such as the catfish, gar, buffalo, and gaspergou, also inhabit these lakes.

In table 4 the suitability of soils in this survey area for six elements of wildlife habitat and for three groups, or kinds, of wildlife are shown. The ratings for kinds of habitat are related to ratings for elements of habitat. For example, soils rated unsuited for shallow water developments are rated unsuited for wetland wildlife. Each soil is rated according to its suitability for producing various kinds of plants and other elements that make up wildlife habitats. The ratings take into account mainly the characteristics of the soils and closely related natural factors of the environment. They do not take into account climate, present use of soils, or present distribution of wildlife and people. For this reason, selection of a site for development as a habitat for wildlife requires onsite inspection.

In table 4, a suitability rating of *good* means that the element of wildlife habitat and habitats in general are easily created, improved, and maintained, that few or no limitations affect management for the specified element, and that satisfactory results can be expected.

Fair means that the element of wildlife habitat and habitats in general can be created, improved, or maintained in most places and that moderate intensity of management and fairly frequent attention is required for satisfactory results.

Poor means that the limitations for the element of wildlife are rather severe, that habitats can be created, improved, or maintained in most places but that management is difficult and requires intensive effort.

Very poor means that the limitations for the element of wildlife habitat are very severe, that unsatisfactory results are to be expected, and that habitats are either impossible or impractical to create, improve, or maintain.

The column heads in table 4 are discussed in the following paragraphs.

Grain and seed crops are annual grain-producing plants, such as corn, sorghum, millet, and soybeans.

Grasses and legumes are domestic grasses and legumes that are established by planting. They provide food and cover for wildlife. Among the grasses are bahiagrass, ryegrass, and panicgrass; among the legumes are annual lespedeza, shrub lespedeza, and clover.

Wild herbaceous plants consist of native or introduced perennial grasses, forbs, and weeds that provide food and

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TABLE 4.—*Suitability of soils for specified*

Soil series and map symbols	Elements of habitat		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants
Acy: Ac	Fair	Fair	Good
Barbary: BA	Very poor	Very poor	Very poor
Calhoun: Ca	Poor	Fair	Fair
Commerce: Cm, Co	Fair	Fair	Good
Convent:			
Cs	Fair	Fair	Good
CV	Poor	Fair	Fair
Deerford: Dp, Dv For Patoutville soil in Dp and Verdun soil in Dv, refer to its respective series.	Fair	Fair	Good
Essen: Es	Fair	Fair	Good
Fausse: FA, FG For Galvez soil in FG, refer to Galvez series.	Very poor	Very poor	Poor
Foley: Fo For Deerford soil in Fo, refer to Deerford series.	Poor	Fair	Fair
Frost: Fr	Poor	Fair	Fair
Galvez: Ga, Gb	Fair	Fair	Good
Jeanerette: Je	Poor	Fair	Fair
Memphis: MeE	Poor	Fair	Good
Olivier: Ov	Fair	Fair	Good
Patoutville Mapped only in a complex with Deerford series.	Fair	Fair	Good
Sharkey: Sa, Sc, Sf	Fair	Fair	Fair
Tunica: Tu	Poor	Fair	Fair
Vacherie: Va	Fair	Fair	Good
Verdun Mapped only in a complex with Deerford soils.	Poor	Poor	Poor

cover for upland wildlife. Beggarweed, perennial lespedeza, wild bean, pokeweed, and panicgrass are typical examples.

Hardwood trees and shrubs are nonconiferous trees, shrubs, and woody vines that produce wildlife food in the form of fruits, nuts, buds, catkins, or browse. Such plants commonly grow in their natural environment, but they may be planted and developed through wildlife management programs. Typical hardwood trees, shrubs, and vines are oak, hickory, beech, cherry, dogwood, maple, viburnum, grape, honeysuckle, greenbrier, and blackgum.

Wetland food and cover are annual and perennial herbaceous plants that grow wild on moist and wet sites. They furnish food and cover mainly for wetland wildlife. Typical examples of these plants are smartweed, wild millet, spikerush, and other rushes, sedges, and grasses. Submerged and floating aquatics are not included.

Shallow water developments are impoundments or excavations for controlling water, generally not more than 3 feet deep. They create habitats that are suited to waterfowl or crawfish. Some are designed to be drained, planted, and then flooded; others are permanent impoundments where submersed aquatics grow.

Openland wildlife are birds and mammals that ordinarily live in meadows, pastures, and open areas where grasses, herbs, and shrubby plants grow. Quail, doves, meadowlarks, field sparrows, cottontail rabbits, and foxes are typical examples.

Woodland wildlife are birds and mammals that generally live in wooded areas of hardwood trees, coniferous trees, and shrubs. Woodcocks, thrushes, wild turkeys, vireos, deer, swamp rabbits, squirrels, and raccoons are typical examples.

Wetland wildlife are birds and mammals that normally live in wet areas, marshes, and swamps. Ducks, geese, rails, shore birds, herons, minks, nutria, and muskrats are typical examples of wetland wildlife.

elements and kinds of wildlife habitat

Elements of habitat—Continued			Kinds of habitat		
Hardwood trees and shrubs	Wetland food and cover	Shallow water developments	Openland	Woodland	Wetland
Good	Fair	Fair	Good	Good	Fair.
Fair	Good	Very poor	Very poor	Very poor	Fair.
Good	Good	Good	Fair	Good	Good.
Good	Fair	Fair	Good	Good	Fair.
Good	Fair	Fair	Fair	Good	Fair.
Good	Fair	Poor	Fair	Good	Fair.
Fair	Fair	Fair	Fair	Fair	Fair.
Fair	Fair	Fair	Fair	Fair	Fair.
Fair	Good	Poor	Very poor	Poor	Fair.
Good	Fair	Good	Fair	Fair	Fair.
Good	Good	Good	Fair	Fair	Fair.
Good	Fair	Fair	Good	Fair	Fair.
Good	Good	Good	Fair	Good	Good.
Good	Very poor	Very poor	Poor	Good	Very poor.
Good	Fair	Poor	Good	Fair	Fair.
Good	Fair	Fair	Fair	Fair	Fair.
Good	Fair	Fair	Fair	Fair	Fair.
Good	Good	Good	Fair	Good	Good.
Good	Good	Good	Fair	Fair	Good.
Good	Fair	Fair	Good	Good	Fair.
Poor	Fair	Good	Poor	Poor	Fair.

Engineering Uses of the Soils [4]

This section is useful to those who need information about soils used as structural material or as foundation upon which structures are built. Among those who can benefit from this section are planning commissions, town and city managers, land developers, engineers, contractors, and farmers.

Among properties of soils highly important in engineering are permeability, strength, compaction characteristics, soil drainage condition, shrink-swell potential, grain size, plasticity, and soil reaction. Also important are depth to the water table and slope. These properties, in various degrees and combinations, affect construction and maintenance of roads, airports, pipelines, foundations for small buildings, irrigation systems, ponds and small dams, and systems for disposal of sewage and refuse.

Information in this section of the soil survey can be helpful to those who—

1. Select potential residential, industrial, commercial, and recreational areas.
2. Evaluate alternate routes for roads, highways, pipelines, and underground cables.
3. Seek sources of gravel, sand, or clay.
4. Plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for controlling water and conserving soil.
5. Correlate performance of structures already built with properties of the kinds of soil on which they are built, for the purpose of predicting performance of structures on the same or similar kinds of soil in other locations.

[4] By LESTER LOFTIN, soil scientist, Soil Conservation Service, Alexandria, and JAMES MARTIN, civil engineer, Soil Conservation Service, Baton Rouge, La.

6. Predict the trafficability of soils for cross-country movement of vehicles and construction equipment.
7. Develop preliminary estimates pertinent to construction in a particular area.

Most of the information in this section is presented in table 5, which shows several estimated soil properties significant to engineering, and in table 6, which shows interpretations for various engineering uses.

This information, along with the soil map and other parts of this publication, can be used to make interpretations in addition to those given in table 6 and it also can be used to make other useful maps.

This information, however, does not eliminate need for future onsite investigations selected for engineering works, especially works that involve heavy loads or that require excavations to depths greater than those shown in the tables, generally depths of more than 6 feet. Also, inspection of sites, especially the small ones, is needed because many delineated areas of a given soil mapping unit may contain small areas of other kinds of soil that have strongly contrasting properties and different suitabilities or limitations for soil engineering.

Some of the terms used in this soil survey have special meaning to soil scientists. The Glossary defines many of these terms.

Engineering soil classification systems

The two systems most commonly used in classifying samples of soils for engineering are the Unified system (*9*) used by the SCS engineers, Department of Defense, and others, and the AASHO system adopted by the American Association of State Highway Officials (*1*).

In the Unified system soils are classified according to particle size distribution, plasticity, liquid limit, and organic matter. Soils are grouped in 15 classes. There are eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt.

The AASHO system is used to classify soils according to those properties that affect use in highway construction

TABLE 5.—*Estimated soil properties*

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or more kinds of soil. The soils for referring to other series that appear in the first column of

Soil series and map symbols	Corrosivity to uncoated steel	Wetness hazard	Flooding hazard	Depth from surface	USDA texture	Classification
						Unified
				Inches		
Acy: Ac	High	Moderate	None to slight.	0–6	Silt loam	ML or ML–CL
				6–41	Silt loam or silty clay loam	CL or ML
				41–65	Silt loam or silty clay loam	ML–CL or CL
Barbary: BA	Very high	Very severe	Very severe	5–0	Muck	Pt
				0–4	Mucky clay	OH
				4–8	Clay	MH
				8–72	Semifluid clay, or mucky clay and logs.	MH or OH
Calhoun: Ca	High	Severe	None to slight.	0–19	Silt loam	ML–CL or ML
				19–51	Silty clay loam	CL
				51–64	Silt loam	ML–CL or CL
Commerce: Cm, Co	High	Moderate	None to slight.	0–10	Silt loam or silty clay loam	CL or ML
				10–38	Silty clay loam or silt loam	CL
				38–75	Silt loam, very fine sandy loam, silty clay loam, or silty clay.	ML, CL, CH
Convent: Cs, CV	High	Moderate	None on Cs; none to very severe on CV.	0–76	Stratified silt loam or very fine sandy loam.	ML, ML–CL
*Deerford: Dp, Dv. For properties of Patoutville soil in Dp, refer to Patoutville series and for properties of Verdun soil in Dv, refer to Verdun series.	High	Moderate	None to slight.	0–12	Silt loam	ML or ML–CL
				12–32	Silty clay loam	CL
				32–65	Silt loam	ML–CL or CL

See footnote at end of table.

and maintenance. In this system, a soil is placed in one of seven basic groups, ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. In group A-1 are gravelly soils of high bearing strength, or the best soils for subgrade (foundation). At the other extreme, in group A-7, are clay soils that have low strength when wet and that are the poorest soils for subgrade. Where laboratory data are available to justify a further breakdown, the A-1, A-2, and A-7 groups are divided as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As additional refinement, the engineering value of a soil material can be indicated by a group index number. Group indexes from 0 for the best material to 20 or more for the poorest. The estimated AASHO classification is given in table 5 for all soils mapped in the survey area.

Soil properties significant in engineering

Several estimated soil properties significant in engineering are given in table 5. These estimates are made for typical soil profiles, by layers sufficiently different to have different significance for soil engineering. The estimates are based on field observation made in the course of mapping, on test data for these and similar soils, and on experience with the same kinds of soil in other parishes. Depth to bedrock is not given in table 5, because bedrock does not occur within a depth that affects the use of the soils. Depth to high water table also is not given in table 5 but is given in the description of each mapping unit in the section "Descriptions of the Soils." Following are explanations of some of the columns in table 5.

Corrosivity to uncoated steel pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel. Rate of corrosion of uncoated steel is related to soil properties, such as drainage, texture, total acidity, and electrical conductivity of the soil material. Installations of uncoated steel that intersect soil boundaries or soil horizons are more susceptible to corrosion than installations entirely in one kind of soil or in one soil horizon. A corrosivity rating of *low* means that there is a low probability of soil-induced corrosion damage. A rating

significant in engineering

in such mapping units may have different properties and limitations, and for this reason it is necessary to follow carefully the instructions this table. The symbol > means more than; the symbol < means less than]

Classification—Continued	Percentage less than 3 inches passing sieve—				Liquid limit	Plasticity index	Reaction	Permeability	Available water capacity	Shrink-swell potential
AASHO	No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)						
							pH			
A-4	100	100	95–100	90–100	10–25	3–7	5. 1–7. 8	0. 6–2. 0	0. 21–0. 23	Low.
A-6 or A-7-6	90–100	85–100	85–100	80–100	30–45	11–22	6. 1–8. 4	0. 2–0. 6	0. 20–0. 22	Moderate.
A-6 or A-4	100	100	95–100	90–100	18–40	6–15	7. 4–8. 4	0. 2–0. 6	0. 20–0. 22	Low.
A-8							6. 1–7. 8			
A-7-5 or A-8					60–100	25–50	6. 6–7. 8			
A-7-5	100	100	100	95–100	70–90	35–45	6. 6–7. 8	0. 06	0. 18–0. 20	Very high.
A-7-5	100	100	100	95–100	70–90	35–45	6. 6–8. 4		0. 18–0. 20	Very high.
A-4	100	100	100	95–100	10–30	3–7	4. 5–6. 0	0. 2–0. 6	0. 22–0. 23	Low.
A-6	100	100	100	95–100	30–40	11–25	4. 5–5. 5	0. 06–0. 2	0. 21–0. 22	Low to moderate.
A-4 or A-6	100	100	100	95–100	20–35	6–20	4. 5–7. 3	0. 2–0. 60	0. 21–0. 23	Low.
A-4, A-6 or A-7-6	100	100	95–100	85–100	5–50	[1] NP–25	5. 6–7. 8	0. 2–2. 0	0. 20–0. 23	Low to moderate.
A-6 or A-7-6	100	100	95–100	85–100	25–50	11–25	6. 1–8. 4	0. 2–0. 6	0. 20–0. 22	Low to moderate.
A-4 or A-6, A-7-6	100	100	95–100	60–95	15–60	5–30	6. 6–8. 4	0. 2–0. 6	0. 20–0. 23	Low to moderate.
A-4	100	100	95–100	60–90	0–15	NP–5	5. 6–8. 4	0. 6–2. 0	0. 20–0. 23	Low.
A-4	100	100	95–100	80–100	0–28	NP–7	4. 5–6. 0	0. 6–2. 0	0. 21–0. 23	Low.
A-6 or A-7-6	100	100	95–100	80–100	20–45	12–20	5. 1–8. 4	0. 06–0. 2	0. 18–0. 20	Moderate.
A-4 or A-6	100	100	95–100	80–100	15–35	5–14	6. 6–8. 4	0. 2–0. 6	0. 15–0. 18	Low.

TABLE 5.—*Estimated soil properties*

Soil series and map symbols	Corrosivity to uncoated steel	Wetness hazard	Flooding hazard	Depth from surface	USDA texture	Classification: Unified
				Inches		
Essen: Es	High	Moderate	None to slight.	0–7	Silt loam	ML–CL or CL
				7–47	Silty clay loam or silt loam	CL
				47–66	Silt loam	ML–CL or CL
*Fausse: FA, FG. For properties of Galvez soil in FG, refer to Galvez series.	High	Very severe	Very severe	2–0	Muck	Pt
				0–9	Clay or mucky clay	CH or OH
				9–76	Clay	CH or MH
*Foley: Fo. For properties of Deerford soil, see Deerford series.	High	Moderate to severe.	None to slight.	0–11	Silt loam	ML or ML–CL
				11–65	Silty clay loam	CL
Frost: Fr	High	Severe	None to slight.	0–8	Silt loam	ML–CL, CL
				8–64	Silty clay loam	CL
Galvez: Ga, Gb	High	Moderate	None to slight.	0–6	Silt loam or silty clay loam	CL, ML, or ML–CL
				6–43	Silty clay loam	CL
				43–62	Silt loam, silty clay loam, silty clay.	CL, ML–CL, or ML
Jeanerette: Je	High	Moderate	None to slight.	0–7	Silt loam	CL or ML–CL
				7–37	Silty clay loam or silt loam	CL
				37–62	Silt loam	CL or ML–CL
Memphis: MeE	Low or moderate.	No hazard	None to slight.	0–7	Silt loam	ML–CL or ML
				7–62	Silty clay loam or silt loam	CL
				62–70	Silt loam	ML–CL, CL, or ML
Olivier: Ov	High	Moderate	None to slight.	0–5	Silt loam	ML–CL or ML
				5–18	Silty clay loam or silt loam	CL
				18–61	Silty clay loam or silt loam	CL, ML, or CL–ML
Patoutville. Mapped only in complex with Deerford soils.	High	Moderate	None to slight.	0–7	Silt loam	ML, ML–CL
				7–19	Silty clay loam	CL
				19–43	Silty clay loam, silt loam	CL
				43–65	Silt loam	ML–CL or CL
Sharkey: Sa, Sc, Sf	Very high	Severe on Sa and Sc. Very severe on Sf.	None to slight on Sa and Sc. Severe on Sf.	0–9	Clay, silty clay loam	CH or CL
				9–44	Clay	CH
				44–62	Clay, silty clay loam, silt loam.	CH, CL, or ML
Tunica: Tu	High	Severe	None to slight.	0–28	Clay	CH
				28–60	Silt loam or very fine sandy loam.	ML, CL, or ML–CL
Vacherie: Va	Very high	Moderate	None to slight.	0–26	Silt loam or very fine sandy loam.	ML, ML–CL
				26–64	Clay, silty clay	CH
Verdun. Mapped only in complex with Deerford soils.	High	Moderate	None to slight.	0–4	Silt loam	ML or ML–CL
				4–27	Silty clay loam	CL
				27–60	Silt loam	CL

[1] NP means nonplastic.

significant in engineering—Continued

Classification—Continued	Percentage less than 3 inches passing sieve—				Liquid limit	Plasticity index	Reaction	Permeability	Available water capacity	Shrink-swell potential
AASHO	No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)						
							pH			
A–4	100	100	100	95–100	15–30	5–10	5. 6–7. 3	0. 6–2. 0	0. 21–0. 23	Low.
A–6	95–100	90–100	85–100	80–100	30–40	14–22	5. 6–8. 4	0. 2–0. 6	0. 20–0. 22	Moderate.
A–4	95–100	90–100	85–100	80–100	20–30	5–10	7. 4–8. 4	0. 2–0. 6	0. 21–0. 23	Low.
A–8							5. 6–7. 3			
A–7–6 or A–7–5	100	100	100	95–100	60–90	35–45	5. 6–7. 3	<0. 6	0. 18–0. 20	Very high.
A–7–6 or A–7–5	100	100	100	95–100	60–90	35–45	6. 6–8. 4	<0. 6	0. 18–0. 20	Very high.
A–4		100	95–100	85–100	0–30	NP–7	5. 6–6. 5	0. 6–2. 0	0. 20–0. 23	Low.
A–7–6 or A–6		100	95–100	90–100	36–50	20–30	5. 6–8. 4	0. 06–0. 2	0. 20–0. 22	Moderate.
A–4 or A–6	100	100	95–100	85–95	20–35	5–18	4. 5–6. 0	0. 2–0. 6	0. 22–0. 23	Low.
A–6 or A–7–6	100	100	95–100	90–100	35–48	20–35	4. 5–7. 8	0. 06–0. 2	0. 20–0. 21	Moderate to high.
A–4 or A–6	100	100	95–100	90–100	8–40	4–18	5. 6–6. 5	0. 2–2. 0	0. 20–0. 23	Low to moderate.
A–6	100	100	95–100	90–100	20–40	11–18	5. 6–8. 4	0. 2–0. 6	0. 20–0. 22	Moderate.
A–6 or A–7–6	100	100	95–100	90–100	20–45	6–20	7. 4–8. 4	0. 2–0. 6	0. 20–0. 23	Moderate.
A–4 or A–6	100	100	95–100	90–100	15–35	5–15	5. 6–7. 8	0. 2–0. 6	0. 22–0. 23	Low.
A–6	90–100	90–100	90–100	90–100	30–40	15–30	6. 6–8. 4	0. 06–0. 2	0. 21–0. 22	Moderate.
A–6 or A–4	90–100	90–100	90–100	90–100	20–35	6–23	7. 4–8. 4	0. 2–6. 0	0. 22–0. 23	Low.
A–4	100	100	100	90–100	25–30	4–7	4. 5–6. 0	0. 6–2. 0	0. 20–0. 23	Low.
A–7–6 or A–6	100	100	100	90–100	35–47	20–30	4. 5–6. 0	0. 6–2. 0	0. 20–0. 22	Moderate.
A–4 or A–6	100	100	100	90–100	30–40	6–12	4. 5–6. 0	0. 6–2. 0	0. 20–0. 23	Low.
A–4	100	100	100	95–100	<25	NP–7	4. 5–6. 0	0. 2–0. 6	0. 22–0. 23	Low.
A–6	100	100	100	95–100	30–40	12–18	4. 5–6. 0	0. 06–0. 2	0. 20–0. 22	Moderate.
A–6 or A–4	100	100	100	95–100	25–40	8–14	4. 5–6. 0	0. 06–0. 2	0. 16–0. 18	Low.
A–4	100	100	100	95–100	<25	NP–7	4. 5–6. 0	0. 2–0. 6	0. 22–0. 23	Low.
A–6 or A–7–6	100	100	100	95–100	30–50	15–25	5. 1–6. 5	0. 06–0. 2	0. 20–0. 22	Moderate.
A–6	100	100	100	95–100	25–40	12–20	5. 6–7. 3	0. 06–0. 2	0. 20–0. 22	Moderate.
A–6, A–4	100	100	100	95–100	20–35	5–15	6. 1–7. 8	0. 2–0. 6	0. 20–0. 22	Low.
A–6 or A–7–6	100	100	100	95–100	30–70	15–40	5. 6–8. 4	<0. 06–0. 2	0. 18–0. 22	Moderate to very high.
A–7–6	100	100	100	95–100	50–70	30–40	6. 1–8. 4	<0. 06	0. 18–0. 20	Very high.
A–7–6, A–6 or A–4	100	100	100	95–100	20–70	8–38	6. 6–8. 4	<0. 06–0. 2	0. 18–0. 22	Moderate to very high.
A–7–6			100	90–100	75–90	40–50	6. 1–8. 4	<0. 06	0. 15–0. 20	Very high.
A–4, A–6			85–95	50–70	10–35	3–15	7. 4–8. 4	0. 6–2. 0	0. 18–0. 21	Low.
A–4	100	100	95–100	60–95	0–20	NP–7	6. 1–8. 4	0. 6–2. 0	0. 20–0. 23	Low.
A–7–6	100	100	100	95–100	50–75	25–40	7. 4–8. 4	<0. 06	0. 18–0. 20	Very high.
A–4	100	100	100	95–100	0–25	NP–7	5. 6–7. 8	0. 2–0. 6	0. 16–0. 23	Low.
A–6 or A–7–6	90–100	85–100	85–100	85–100	34–45	18–24	6. 6–8. 4	<0. 06	0. 14–0. 18	Moderate.
A–6	90–100	85–100	85–100	85–100	25–36	14–20	7. 9–9. 0	0. 06–0. 2	0. 14–0. 18	Low.

TABLE 6.—*Interpretations of*

Soil series and map symbols	Degree and kind of limitation for—					
	Dwellings without basements	Septic tank filter fields	Sewage lagoons	Sanitary landfill (trench type)	Picnic areas and golf fairways	Playgrounds and camp areas
Acy: Ac	Moderate: wetness; shrink-swell potential of subsoil.	Severe: moderate permeability.	Severe: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness; moderately slow permeability.
Barbary: BA	Very severe: flooding.	Severe: flooding	Severe: Organic content; site material; semifluid subsoil with buried logs; flooding.	Severe: flooding	Severe: flooding	Severe: flooding
Calhoun: Ca	Severe: wetness	Severe: slow permeability.	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness; slow permeability.
Commerce: Cm, Co	Moderate: wetness	Severe: moderately slow permeability; wetness.	Severe: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness; moderately slow permeability.
Convent: Cs	Moderate: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness
CV	Very severe: flooding.	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding
*Deerford: Dp, Dv. For properties of Patoutville soil in Dp, and Verdun soil in Dv, refer to their respective series.	Moderate: wetness; shrink-swell potential of subsoil.	Severe: slow permeability; wetness.	Moderate: piping and erosion potential of site material.	Severe: wetness	Moderate: wetness	Moderate: wetness; slow permeability.
Essen: Es	Moderate: wetness; shrink-swell potential of subsoil.	Severe: moderately slow permeability; wetness.	Severe: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness
*Fausse: FA, FG. For properties of Galvez soil in FG, refer to Galvez series.	Very severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding; clayey texture.	Severe: flooding	Severe: flooding
*Foley: Fo. For properties of Deerford soil, refer to Deerford series.	Severe: wetness	Severe: slow permeability; wetness.	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
Frost: Fr	Severe: wetness	Severe: slow permeability; wetness.	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness; slow permeability.
Galvez: Ga, Gb	Moderate: wetness; shrink-swell potential of subsoil.	Severe: moderately slow permeability; wetness.	Severe: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness; moderately slow permeability.
Galvez part of FG	Very severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe; flooding

engineering properties of the soils

Degree and kind of limitation for—Continued				Soil features affecting land grading and shaping	Suitability as a source of—			
Local roads and streets	Light industry	Pond reservoir areas	Embankments (homogeneous)		Topsoil	Highway subgrade (road fill)	Highway subbase	Soil cement base material
Moderate: traffic-supporting capacity; wetness.	Moderate: wetness; shrink-swell potential of subsoil; corrosivity of uncoated steel.	Moderate: moderately slow permeability.	Moderate: slope stability; compressibility; piping and erosion potential.	Wetness	Fair	Fair	Unsuitable	Very poor.
Severe: flooding	Severe: flooding	Severe: organic surface layer; logs and wood fragments in lower horizons.	Severe to very severe: slope stability; seepage; compressibility.	Wetness; water table; flooding; buried logs and stumps; texture.	Poor	Poor to unsuitable.	Unsuitable	Unsuitable.
Severe: wetness	Severe: wetness; corrosivity of uncoated steel.	Slight	Fair: stability; compressibility; piping and erosion potential.	Wetness	Poor	Poor	Poor to unsuitable.	Very poor.
Moderate: wetness; traffic-supporting capacity.	Moderate: wetness; corrosivity of uncoated steel.	Moderate: moderately slow permeability.	Moderate: compressibility; piping and erosion potential.	Wetness	Fair to good	Fair	Poor to unsuitable.	Poor to very poor.
Moderate: wetness; traffic-supporting capacity.	Moderate: wetness; high corrosivity of uncoated steel.	Moderate: moderate permeability.	Moderate: compressibility; piping and erosion potential.	Wetness	Good	Fair	Poor	Fair.
Severe: flooding	Severe: flooding	Moderate: moderate permeability.	Moderate: compressibility; piping and erosion potential.	Wetness; flooding.	Good	Fair	Poor	Fair.
Moderate: traffic-supporting capacity; wetness; shrink-swell potential of subsoil.	Moderate: wetness; shrink-swell potential of subsoil; corrosivity of uncoated steel.	Slight	Moderate: compressibility; piping and erosion potential.	Wetness	Poor	Fair	Poor to unsuitable.	Poor to unsuitable.
Moderate: traffic-supporting capacity; wetness; shrink-swell potential of subsoil.	Moderate: wetness; shrink-swell potential of subsoil; corrosivity of uncoated steel.	Moderate: moderately slow permeability.	Moderate: compressibility; piping; erosion.	Wetness	Fair	Fair	Poor to unsuitable.	Poor to very poor.
Severe: flooding	Very severe: flooding.	Severe: flooding	Severe: compressibility; slope stability.	Wetness	Poor	Poor	Unsuitable	Very poor to unsuitable.
Severe: traffic-supporting capacity; wetness.	Severe: wetness; corrosivity of uncoated steel.	Slight	Moderate: slope stability; compressibility; piping and erosion potential.	Wetness	Fair to poor	Fair to poor	Poor to unsuitable.	Poor to unsuitable.
Severe: wetness; traffic-supporting capacity.	Severe: wetness; corrosivity of uncoated steel.	Slight	Moderate: compressibility; piping and erosion potential.	Wetness	Poor	Poor	Poor to unsuitable.	Poor to very poor.
Moderate: wetness; shrink-swell potential of subsoil; traffic-supporting capacity.	Moderate: wetness; shrink-swell potential of subsoil; corrosivity of uncoated steel.	Moderate: moderately slow permeability.	Moderate: compressibility.	Wetness	Fair	Fair	Poor to unsuitable.	Poor to very poor.
Severe: flooding	Very severe: flooding.	Moderate: moderately slow permeability.	Moderate: compressibility.	Wetness: flooding.	Fair to poor	Fair	Poor to unsuitable.	Poor to very poor.

TABLE 6.—*Interpretations of engineering*

Soil series and map symbols	Degree and kind of limitation for—					
	Dwellings without basements	Septic tank filter fields	Sewage lagoons	Sanitary landfill (trench type)	Picnic areas and golf fairways	Playgrounds and camp areas
Jeanerette: Je	Moderate: wetness	Severe: slow permeability; wetness.	Severe: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness; slow permeability.
Memphis: MeE	Severe: slope	Moderate if slope is 5 to 15 percent; moderate permeability. Severe if slope is more than 15 percent.	Severe: slope	Moderate: silty clay loam texture; slope if more than 15 percent.	Moderate if slope is 5 to 15 percent. Severe if slope is more than 15 percent.	Severe: slope
Olivier: Ov	Moderate: wetness	Severe: wetness; slow permeability.	Severe: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness; slow permeability.
Patoutville Mapped only in complex with Deerford soils.	Moderate: wetness; shrink-swell potential of subsoil.	Severe: wetness; slow permeability.	Severe: wetness	Severe: wetness	Moderate: wetness	Moderate: wetness; slow permeability.
Sharkey: Sa, Sc	Severe: wetness; shrink-swell potential; plasticity index.	Severe: very slow permeability; wetness.	Slight	Severe: clayey texture; wetness.	Severe: wetness; clayey texture.	Severe: wetness; very slow permeability; clayey texture.
Sf	Very severe: flooding.	Severe: flooding	Slight: severe if floodwater is deep.	Severe: flooding	Severe: flooding	Severe: flooding
Tunica: Tu	Severe: wetness; shrink-swell potential.	Severe: very slow permeability; wetness.	Moderate: very slow permeability below a depth of 28 inches.	Severe: wetness; clayey texture.	Severe: wetness; clayey texture.	Severe: wetness; clayey texture; very slow permeability.
Vacherie: Va	Moderate: wetness; shrink-swell potential of subsoil.	Severe: very slow permeability; wetness.	Slight	Severe: wetness; clayey texture of subsoil.	Moderate: wetness	Moderate: wetness; very slow permeability.
Verdun Mapped only in complex with Deerford soils.	Moderate: wetness; shrink-swell potential of subsoil.	Severe: very slow permeability; wetness.	Moderate: piping and erosion potential of site material.	Moderate: wetness; texture.	Moderate: wetness	Moderate: wetness; very slow permeability.

of *high* means that there is a high probability of damage, so that protective measures for steel should be used to avoid or minimize damage (*8*).

Wetness hazard ratings are based on estimates of the length of time that free water stays in a soil after the saturation point has been reached. The degree of wetness is expressed as *slight*, *moderate*, *severe*, and *very severe*. None of the soils in this parish are rated slight.

Flooding hazard refers to the risk of flooding as a result of stream overflow, runoff from adjacent areas, or local accumulation. Since the soils affected and the depth and duration of floods vary considerably with the severity of each rainstorm, the ratings shown in table 5 for flooding hazard are intended only for general guidance. Local records should be used for a more accurate estimate of the flooding hazard for any particular soil. The hazard is

properties of the soils—Continued

Degree and kind of limitation for—Continued				Soil features affecting land grading and shaping	Suitability as a source of—			
Local roads and streets	Light industry	Pond reservoir areas	Embankments (homogeneous)		Topsoil	Highway subgrade (road fill)	Highway subbase	Soil cement base material
Severe: traffic-supporting capacity.	Moderate: wetness; corrosivity of uncoated steel.	Slight	Moderate: compressibility.	Wetness	Fair	Poor	Poor to unsuitable.	Poor to very poor.
Moderate if slope is 5 to 15 percent. Severe if slope is more than 15 percent.	Severe: slope	Moderate: moderate permeability.	Moderate: compressibility.	Slope	Good	Fair	Poor to unsuitable.	Poor to very poor.
Moderate: wetness; traffic-supporting capacity.	Moderate: wetness; corrosivity of uncoated steel.	Slight	Moderate: compressibility.	Wetness	Fair	Fair	Poor to unsuitable.	Poor to very poor.
Moderate: wetness; traffic-supporting capacity; shrink-swell potential.	Moderate: wetness; corrosivity of uncoated steel; shrink-swell potential.	Slight	Moderate: compressibility.	Wetness	Fair	Fair to poor	Poor to unsuitable.	Poor to very poor.
Severe: wetness; traffic-supporting capacity; shrink-swell potential.	Severe: wetness; shrink-swell potential; corrosivity of uncoated steel.	Slight	Moderate: compressibility; stability.	Wetness; difficult to work.	Poor	Poor	Unsuitable	Very poor to unsuitable.
Severe: flooding	Severe: flooding	Slight	Moderate: compressibility; stability.	Wetness; difficult to work: flooding.	Poor	Poor	Unsuitable	Very poor to unsuitable.
Severe: traffic-supporting capacity; shrink-swell potential; wetness.	Severe: wetness; shrink-swell potential; corrosivity of uncoated steel.	Moderate: less than 3 feet to permeable material.	Moderate: compressibility; stability.	Wetness: difficult to work.	Poor	Poor at a depth between 0 and 28 inches. Fair at a depth between 28 and 48 inches.	Unsuitable at a depth between 0 and 28 inches. Poor to unsuitable at a depth between 28 and 48 inches.	Very poor to unsuitable at a depth between 0 and 28 inches. Poor to very poor at a depth between 28 and 48 inches.
Moderate: traffic-supporting capacity; wetness; shrink-swell potential of subsoil.	Moderate: wetness; shrink-swell potential; corrosivity of uncoated steel.	Slight	Moderate: piping and erosion potential; compressibility.	Wetness	Good	Fair at a depth between 0 and 26 inches. Poor at a depth between 26 and 64 inches.	Poor at a depth between 0 and 26 inches. Unsuitable at a depth between 26 and 64 inches.	Fair at a depth between 0 and 26 inches. Poor to unsuitable at a depth between 26 and 64 inches.
Moderate: wetness; traffic-supporting capacity; shrink-swell potential of subsoil.	Moderate: wetness; shrink-swell potential; corrosivity of uncoated steel.	Slight	Moderate: piping and erosion potential; compressibility.	Wetness	Poor to very poor.	Fair to poor	Poor to unsuitable.	Poor to unsuitable.

none to slight if the soils are not subject to flooding or that are flooded less than once in 15 years. The remote possibility of flooding as a result of breaks in the Mississippi River levee system is included in this class. The hazard is *moderate* if the soil is flooded at least once in 15 years. The hazard is *severe* if the soil is flooded one or more times each year. The hazard is *very severe* if the soil is almost continuously flooded, or if the floodwater has sufficient velocity to cause scouring and deposition.

Soil texture is described in the standard terms used by the Department of Agriculture. These terms take into account relative percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that contains 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent

sand. "Sand," "silt," "clay," and some of the other terms used in USDA textural classification are defined in the Glossary of this soil survey.

Liquid limit and plasticity index indicate the effect of water on the strength and consistence of soil material. As the moisture content of a clayey soil is increased from a dry state, the material changes from a semisolid to a plastic. If the moisture content is further increased, the material changes from a plastic to a liquid. The plastic limit is the moisture content at which the soil material changes from a semisolid to a plastic; and the liquid limit from a plastic to a liquid. The plasticity index is the numerical difference between the liquid limit and the plastic limit.

Reaction is the degree of acidity or alkalinity of a soil expressed in pH values. The pH value and terms used to describe soil reaction are explained in the Glossary.

Permeability is that quality of a soil that enables it to transmit water or air. It is estimated on the basis of those soil characteristics observed in the field, particularly structure and texture. The estimates in table 5 do not take into account lateral seepage or such transient soil features as plowpans and surface crusts.

Available water capacity is the ability of soils to hold water for use by most plants. It is commonly defined as the difference between the amount of water in the soil at field capacity and the amount at the wilting point of most crop plants.

Shrink-swell potential is the relative change in volume to be expected of soil material with changes in moisture content; that is, the extent to which the soil shrinks as it dries out or swells when it gets wet. Extent of shrinking and swelling is influenced by the amount and kind of clay in the soil. Shrinking and swelling of soils cause much damage to building foundations, roads, and other structures. A high shrink-swell potential indicates a hazard to maintenance of structures built in, on, or with material having this rating.

Engineering interpretations of the soils

The estimated interpretations in table 6 are based on the engineering properties of soils shown in table 5, on test data for soils in nearby or adjoining survey areas, and on the experience of engineers and soil scientisists with the soils of Ascension Parish. In table 6, ratings are used to summarize limitation or suitability of the soils for the listed purposes.

Soil limitations are indicated by the ratings slight, moderate, severe, and very severe. *Slight* means that soil properties are generally favorable for the specified use or that limitations are minor and easily overcome or modified by special planning and design. *Moderate* means that soil properties are not favorable but can be tolerated or overcome by measures that are general and practical. *Severe* means that soil properties are so unfavorable and so difficult to correct or overcome that they require major soil reclamation, special designs, or intensive maintenance. *Very severe* means that one or more soil properties are so unfavorable for the specified use that overcoming the limitations is most difficult and costly.

Soil suitability is rated by the terms *good, fair, poor, very poor,* and *unsuitable* which have meanings approximately parallel to the terms slight, moderate, severe, and very severe, respectively.

Following are explanations of some of the columns in table 6.

Dwellings without basements are not more than three stories high and are supported by foundation footings placed in undisturbed soil. The features that affect the rating of a soil for dwellings are those that relate to capacity to support load and resist settlement under load and those that relate to ease of excavation. Soil properties that affect capacity to support load are wetness, susceptibility to flooding, density, plasticity, texture, and shrink-swell potential. Those that affect excavation are wetness and slope.

Septic tank filter fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into natural soil. The soil material from a depth of 18 inches to 6 feet is evaluated. The soil properties considered are those that affect both absorption of effluent and construction and operation of the system. Properties that affect absorption are wetness, permeability, depth to water table, and susceptibility to flooding. Slope is a soil property that affects difficulty of layout and construction and also the risk of erosion, lateral seepage, and downslope flow of effluent. Septic tank filter fields must be installed according to state and local health ordinances.

Sewage lagoons are shallow ponds constructed to hold sewage within a depth of 2 to 5 feet of the surface long enough for bacteria to decompose the solids. A lagoon has a nearly level floor and sides, or embankments, of compacted soil material. It is assumed that the embankment is compacted to medium density and the pond is protected from flooding. Properties are considered that affect the pond floor and the embankment. Those that affect the pond floor are permeability, content of organic matter, and slope. The soil properties that affect the embankment are the engineering properties of the embankment material, as interpreted from the Unified soil classification, that influence the ease of excavation and compaction of the embankment material. Site location and installation of sewage lagoons must be in accordance with state and local health ordinances.

Sanitary landfill is a method of disposing of refuse in dug trenches. The waste is spread in thin layers, compacted, and covered with soil throughout the disposal period. Landfill areas are subject to heavy vehicular traffic. Some soil features that affect suitability for landfill are ease of excavation, risk of polluting ground water, and trafficability. The best soils have moderately slow permeability, withstand heavy traffic, and are friable and easy to excavate. Unless otherwise stated, the ratings in table 6 apply only to a depth of about 5 feet, and therefore limitations of *slight* or *moderate* are not valid if trenches are much deeper than that. For some soils, reliable predictions can be made to a depth of 10 or 15 feet, but every site should be investigated before it is selected. State and local health ordinances must be considered in the location of sites for sanitary landfills as well as ordinances covering installation and operating procedures.

Picnic areas and golf fairways are attractive natural or landscaped areas that are subject to heavy foot traffic. Most of the heavy vehicular traffic, however, is confined to access roads. The best soils have good drainage, are firm when wet but not dusty when dry, are free of flooding during the season of use, and do not have slopes that

greatly increase cost of leveling sites or of building access roads.

Playgrounds and camp areas are used intensively for outdoor activities. Soils suitable for these uses need to withstand intensive foot traffic. The best soils have a nearly level surface layer free of coarse fragments, good drainage, and a surface that is firm after rains but not dusty when dry.

Local roads and streets have an all-weather surface expected to carry automobile traffic all year. They have a subgrade of underlying soil material; a base consisting of gravel, crushed rock, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. These roads are graded to shed water and have ordinary provisions for drainage. They are built mainly from soil at hand, and most cuts and fills are less than 6 feet deep.

Soil properties that most affect design and construction of roads and streets are load-supporting capacity and stability of the subgrade, and the workability and quantity of cut and fill material available. The AASHO and Unified classifications of the soil material, and the shrink-swell potential, indicate load-supporting capacity. Wetness and flooding affect stability of the material. Slope and wetness affect ease of excavation and amount of cut and fill needed to reach an even grade.

Undisturbed soils are rated for their suitability in supporting foundations of buildings used by light industry. Emphasis is on foundations, ease of excavation for underground utilities, and corrosion potential to uncoated steel pipe. The undisturbed soil is rated for spread footing foundations for buildings less than three stories high or foundation loads not in excess of that weight. Properties affecting load-supporting capacity and settlement under load are wetness, flooding, texture, plasticity, density, and shrink-swell behavior. Properties affecting excavation are wetness, flooding, and slope. Properties affecting corrosion to buried uncoated steel pipe are wetness, texture, total acidity, and electrical resistivity.

Pond reservoir areas hold water behind a dam or embankment. Soils suitable for pond reservoir areas have low seepage, which is related to their permeability as well as to depth to permeable material.

Embankments (homogeneous) are raised structures of soil material. These embankments are generally less than 20 feet high, are constructed of homogeneous soil material and compacted to medium density. Soil properties considered are slope stability, permeability, compressibility, and resistance to piping and erosion.

Soil features affecting land grading and shaping are those that affect the relative ease or difficulty of leveling, shaping, or cutting to grade. Soil properties considered are wetness, slope, texture, workability, and flooding hazard.

Topsoil is used for topdressing an area where vegetation is to be established and maintained. Suitability is affected mainly by ease of working and spreading the soil material, as when preparing a seedbed; natural fertility of the material, or the response of plants when fertilizer is applied; and absence of substances toxic to plants. Texture of the soil material and damage that results in the area from which topsoil is taken are considered.

Highway subgrade (roadfill) is soil material used in embankments for roads. The suitability ratings reflect the predicted performance of soil after it has been placed in an embankment that has been properly compacted and provided with adequate drainage and the relative ease of excavating the material at borrow areas.

Highway subbase is soil material used under rigid or flexible pavement roads. It makes up the lower part of the base course and is placed directly on the subgrade. The best soils are those that have a very low plasticity index. Soils with a plasticity index of more than 15 are not suited.

Soil cement base material is used to mix with Portland cement for highway subbase and slope protection against wave action on dams and other embankments exposed to wave action. Suitability ratings are based on the percentage of cement needed to produce soil cement that can withstand many freeze-thaw and wet-dry cycles without deterioration. Generally a well-graded silty sand in which less than 35 percent passes sieve no. 200 is the best. Soils that have a high clay content are less desirable.

Formation and Classification of the Soils

This section discusses the factors and processes of soil formation and tells how they have affected the soils of Ascension Parish. This section also explains the current system of soil classification and includes a table that shows the classification of soil series according to the current system.

Factors of Soil Formation

Soils form as a result of the interaction of five major factors: climate, relief, living organisms in and on the soil, parent material, and time. The interrelations of these factors are so complex that few generalizations can be made about one factor unless conditions are specified for the other four. The degree to which each of these factors influences soil formation varies from place to place.

Climate and living organisms are the active forces in soil formation. They act on the parent material and slowly change it into a natural body that has genetically related horizons. Relief modifies the effect of climate and living organisms mainly by its influence on runoff, erosion, and temperature. Parent material also affects the kind of profile that can be formed. Finally, time is essential for the changing of parent material into a soil profile.

Climate

Ascension Parish has the humid, subtropical climate that is characteristic of areas near the Gulf of Mexico (*6*). The climate is uniform within the survey area. The rainfall is relatively high, the humidity is high except in fall, and the temperature is fairly high to moderate.

Because the climate is warm and moist, some of the soils formed rapidly and are strongly weathered and acid. Olivier soils, for example, are highly leached soils compared with Convent soils. The clay and soluble bases and minerals have moved downward from the surface layer and have accumulated to form a well-developed Bt horizon. Factors other than climate also influence the degree of leaching and cause local differences in soils. Commerce soils and other soils of the recent flood plain are weakly formed because they have been exposed to the influence of the climate for a comparatively short time.

Relief

Relief, though faint in most of the parish, and its effect on drainage have had an important influence on the formation of the soils. Microrelief predominates, except for a small area on the steep escarpment.

The level Sharkey soils occur in low areas and receive runoff from the higher Commerce and Convent soils; consequently, they are more poorly drained and have a higher water table and have a gray B horizon. In addition, the A horizon has been darkened by the accumulation of organic matter.

Olivier soils are mainly nearly level to very gently sloping. Runoff is slow, and the movement of water through these soils is restricted by a fragipan. Frequent wetting and drying has produced gray mottles in the Bt horizon.

Calhoun and Frost soils are level to nearly level and occur on broad flats and in drainageways. Runoff is slow to very slow, and the water table is near the surface for long periods. Excessive wetness has reduced the iron compounds, and consequently the soils are gray.

Living organisms

Living organisms, including plants, bacteria, fungi, and animals, are important in the formation of soils. Among the chemical and mechanical changes they cause are gains in content of organic matter and nitrogen, gains or losses in content of plant nutrients, and changes in structure and porosity. Plant roots force openings into the soil and modify porosity. As they grow, they break up and rearrange the soil particles. Plants transfer nutrients from the subsoil to the surface layer, and when they die, they supply humus to the soils. Bacteria decomposes organic matter and helps to improve the physical condition of the soil. Animals, such as crawfish and earthworms, also influence soil formation by mixing the soil material. When animals die they form humus, a source of nutrients.

On the alluvial plain in Ascension Parish the native vegetation consisted mainly of mixed hardwoods. Soils that formed under this kind of vegetation, such as Convent and Commerce soils, are relatively low in content of organic matter. Barbary soils that formed under similar vegetation and that are continuously saturated with water are very high in content of organic matter and have a few inches of woody organic material on the surface.

On the Pleistocene-age terrace uplands the native vegetation consisted of both hardwood trees and grasses. The amount of organic matter that accumulated in the soils of this area generally is low to moderately low. The acid, loamy Olivier and Calhoun soils that formed under a cover of dominantly mixed hardwoods are low in content of organic matter. The Jeanerette soils that formed under a luxuriant growth of grasses have a moderately thick, dark-colored surface layer that is fairly high in content of organic matter.

Parent material

Parent material is the unconsolidated mineral mass from which soils form. The nature of the parent material influences the chemical and mineralogical composition of the soils. It also influences the degree of leaching, reaction, texture, permeability, drainage, and kind and color of the surface layer and subsoil. Textural differences in parent material are accompanied by difference in chemical and mineralogical composition. In general, soils that form from silty and sandy parent material have a lower capacity to hold nutrients than those that form from clay.

Alluvium and loesslike material that are very low in sand content were the parent material of the soils in Ascension Parish.

The natural levees on the alluvial plain along the Mississippi River vary widely in texture because the floodwater varies in velocity. When the river overflows its banks and spreads out, the coarser textured sand particles are deposited nearest the river. As the floodwater continues to spread and move more slowly, it deposits finer textured particles. Most of the clay and fine silt particles settle out of the very slowly moving and standing water in the low depressions and backswamp. Consequently, in areas where the velocity and load of the floodwater are uniform, the deposits are clay and fine silt. Sharkey soils formed in thick, clayey sediment in low depressions and near the toe of the natural levee. In contrast, the loamy Convent soils formed in the sediment deposited nearest the river. Although the Convent soils formed in deposits of very fine sand and silt, they are generally more productive than clayey soils, such as Sharkey, because the relationship of plant roots, air, and water is more favorable.

In the backswamps, the soils formed in thick clayey sediment deposited by standing water. Barbary soils formed in the lower areas of the swamp and have a thin accumulation of organic materials. This accumulation was facilitated by a high water table and prolonged flooding.

The loesslike sediment on the Pleistocene-age terrace uplands ranges from about 4 to 8 feet in thickness. Soils that formed in this deposit are uniform in texture, contain very little sand-size particles, and contain rather large amounts of silt-size particles. In general, soils such as Olivier and Calhoun soils largely have been leached of carbonates and soluble salts and they have an acid subsoil. Soils such as Essen, Acy, and Jeanerette soils have not been completely leached of carbonates, and they have an alkaline subsoil. The Verdun, Deerford, and Foley soils have not been leached of all carbonates and contain considerable amounts of sodium and calcium. The sodium and calcium probably resulted from the decomposition of sodium and calcium feldspars in the loesslike material.

Time

The length of time required for soil formation depends on the combined influence of the five soil-forming factors. The differences in the length of time that parent materials have been exposed to the active forces of soil formation, therefore, are commonly reflected in the characteristics of the soil profile.

The youngest soils in this parish are recent in age and are on the alluvial plain. The oldest are soils formed in loesslike material on the terrace uplands.

The soils on the alluvial plain have only faint profile development. For example, Commerce soils retain many of the characteristics of its alkaline, loamy parent material. Evidence of the faint development is a darkening of the A horizon by organic matter and a weakly developed B horizon. Convent soils have even less profile development, and about the only evidence of age is the darkening of the A horizon by organic matter (fig. 8) and the removal of some of the carbonates.

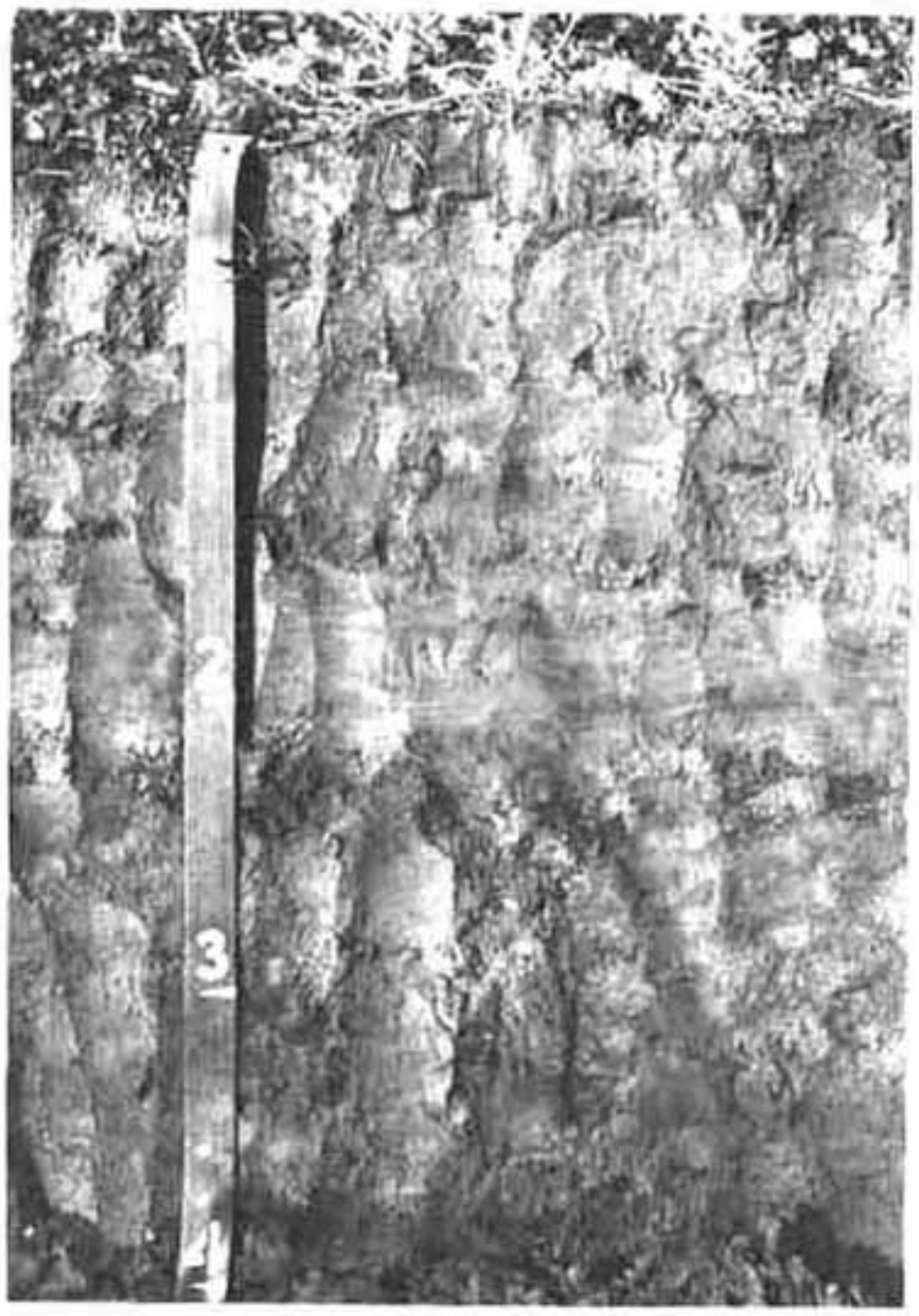

Figure 8.—**Profile of Convent silt loam.**

In contrast, Calhoun and Olivier soils that formed in the oldest parent material in the parish have distinct profile development. They have been leached of most carbonates and other soluble salts and are acid. Fine clay has moved downward from the A horizon to form a strongly developed silt clay loam Bt horizon.

Processes of Soil Formation

The younger soils in the parish have faint horizons and the older soils have distinct horizons. The degree of horizonation is the result of one or more of the following processes: (1) accumulation of organic matter, (2) leaching of soluble carbonates and bases, (3) reduction, solution, and transfer of iron and manganese, and (4) formation and translocation of silicate clay minerals.

In most soils in the parish, two or more of the processes have influenced the development of horizons. For example, an accumulation of organic matter, the reduction and transfer of iron, and the formation of structure in the B horizon are reflected in the horizons of Commerce and Sharkey soils. An accumulation of organic matter and leaching of some of the carbonates are about the only processes reflected in the faint horizons of Convent soils.

Enough organic matter has accumulated to form an A1 horizon in all soils in the parish. Jeanerette soils have a thick, dark-colored A1 horizon that is fairly high in organic-matter content. The Olivier soils under forest have A1 horizons that contain low amounts of organic matter.

Solution and leaching of carbonates and salts have occurred in all soils in the parish, but the degree of leaching and the extent of influence on horizon development vary. The Olivier and Calhoun soils, which are on the Pleistocene-age terrace uplands, have been leached of most soluble salts and carbonates and are acid. Patoutville and Frost soils have a slightly acid to mildly alkaline substratum in some areas. Possibly, these highly leached soils were once high in content of carbonates. Many of the soils in this parish have been little affected by leaching and are moderately alkaline in some horizons below the surface. Verdun soils, for example, are high in sodium at the top of the Bt horizon. The clay in these soils, when wet, deflocculates and forms a seal that prevents excessive leaching. In some areas, Sharkey clay is moderately alkaline throughout because dense clay severely restricts leaching.

Calhoun, Frost, Sharkey, and other poorly drained and very poorly drained soils in this parish have horizons that formed mainly through a process called gleization. The process includes reduction, solution, and transfer of iron and manganese. In these soils, which are alternately wet and dry, the iron compounds are reduced to a soluble form, and gray colors predominate. If drainage is impeded or the water table is high, anaerobic micro-organisms remove oxygen from the water; this oxygen deficiency results in the reduction of iron and manganese. Oxidized forms of iron and manganese are reduced to the more soluble divalent forms which may be leached from the soils, or they rise to the surface of waterlogged soils and form segregated iron and manganese concretions. There are iron and manganese concretions in some poorly drained and somewhat poorly drained soils in this parish and gleyed horizons in all the poorly drained and very poorly drained soils.

The formation and translocation of silicate clay minerals contributed to horizon formation in all soils on the Pleistocene-age terrace uplands in the parish. The recent soils on the alluvial plain have been little affected by this process. The bleached, light-colored A2 horizon of the Calhoun soils is an example of an eluviated horizon from which iron compounds and clay have been removed. In many soils in the parish, a B2t horizon has formed through the accumulation of translocated colloidal or sesquioxide clay. The B2t horizon is finer textured than the A1, Ap, and A2 horizons. Essen silt loam, for example, has an Ap horizon of silt loam, a B2t horizon of silty clay loam, and a C horizon of silt loam. The presence of clay films on the structural surfaces in the B2t horizon of this and many other soils is more evidence of the downward movement of clay.

Classification of the Soils

Soils are classified so that we can more easily remember their significant characteristics. Classification enables us to assemble knowledge about the soils, to see their relationship to one another and to the whole environment, and to develop principles that help us to understand their behavior and their response to manipulation. First through

classifications, and then through use of soil maps, we can apply our knowledge of soils to specific fields and other tracts of land.

The narrow categories of classification, such as those used in detailed soil surveys, allow us to organize and apply knowledge about soils in managing farms, fields, and woodlands; in developing rural areas; in engineering work; and in many other ways. Soils are placed in broad classes to facilitate study and comparison in large areas such as countries and continents.

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965 and is called the Soil Taxonomy.[5] In table 7, the soil series of Ascension Parish are classified according to the Soil Taxonomy.

The Soil Taxonomy has six categories. Beginning with broadest, these categories are order, suborder, great group, subgroup, family, and series. In this system the criteria used as a basis for classification are soil properties that are observable and measurable. The properties are chosen, however, so that the soils of similar genesis, or mode of origin, are grouped together. Classes of the Soil Taxonomy are briefly defined in the following paragraphs.

Order.—Ten soil orders are recognized. The properties used to differentiate among soil orders are those that tend to give broad climatic groupings of soils. The three exceptions to this are the Entisols, Inceptisols, and Histosols, which occur in many different climates. Each order is named with a word of three or four syllables ending in *sol.*

Suborder.—Each order is subdivided into suborders that are based primarily on those soil characterisitcs that seem to produce classes with the greatest genetic similarity. The suborders narrow the broad climatic range permitted in the orders. The soil properties used to separate suborders are mainly those that reflect either the presence or absence of waterlogging, or soil differences resulting from the climate or vegetation. The names of suborders have two syllables. The last syllable indicates the order.

Great group.—Soil suborders are separated into great groups on the basis of uniformity in the kinds and sequence of major soil horizons and features. The horizons used to make separations are those in which clay, iron, or humus have accumulated; those that have pans that interfere with growth of roots, movement of water, or both; and those that have thick, dark-colored surface horizons. The features used are the self-mulching properties of clay, soil temperature, major differences in chemical composition (mainly calcium, magnesium, sodium, and potassium), dark-red and dark-brown colors associated with basic rocks, and the like. The names of great groups have three or four syllables and are made by adding a prefix to the name of the suborder.

Subgroup.—Great groups are subdivided into subgroups, one representing the central (typic) segment of the group and others called intergrades that have properties of the group and also one or more properties of another great group, suborder, or order. Subgroups may also be made in those instances where soil properties intergrade outside of the range of any other great group, suborder, or order. The names of subgroups are derived by placing one or more adjectives before the name of the great group.

Family.—Soil families are separated within a subgroup primarily on the basis of properties important to the growth of plants or on the behavior of soils when used for engineering. Among the properties considered are texture, mineralogy, reaction, soil temperature, permeability, thickness of horizons, and consistence. A family name consists of a series of adjectives preceding the subgroup name. The adjectives are the class names for texture, mineralogy, and so on, that are used to differentiate families as shown in table 7.

Series.—The series has the narrowest range of characteristics of the categories in the classification system. It is explained in the section "How This Survey Was Made."

[5] Unpublished working document used in the Soil Conservation Service: "Soil Taxonomy of the National Cooperative Soil Survey." Chapters 3, 4, 8, 10, 12, 13, and 18, illus. 1970. (Copy available in SCS State office.)

General Nature of the Parish

Ascension Parish was created from the County of Acadia by the Territorial Legislature when it divided the original

TABLE 7.—*Classification of soil series*

Series	Family	Subgroup	Order
Acy	Fine-silty, mixed, thermic	Aeric Ochraqualfs	Alfisols.
Barbary	Very fine, montmorillonitic, nonacid, thermic	Typic Hydraquents	Entisols.
Calhoun	Fine-silty, mixed, thermic	Typic Glossaqualfs	Alfisols.
Commerce	Fine-silty, mixed, nonacid, thermic	Aeric Fluvaquents	Entisols.
Convent	Coarse-silty, mixed, nonacid, thermic	Aeric Fluvaquents	Entisols.
Deerford	Fine-silty, mixed, thermic	Albic Glossic Natraqualfs	Alfisols.
Essen	Fine-silty, mixed, thermic	Aeric Ochraqualfs	Alfisols.
Fausse	Very fine, montmorillonitic, nonacid, thermic	Typic Fluvaquents	Entisols.
Foley	Fine-silty, mixed, thermic	Albic Glossic Natraqualfs	Alfisols.
Frost	Fine-silty, mixed, thermic	Typic Glossaqualfs	Alfisols.
Galvez	Fine-silty, mixed, thermic	Aeric Ochraqualfs	Alfisols.
Jeanerette	Fine-silty, mixed, thermic	Typic Argiaquolls	Mollisols.
Memphis	Fine-silty, mixed, thermic	Typic Hapludalfs	Alfisols.
Olivier	Fine-silty, mixed, thermic	Aquic Fragiudalfs	Alfisols.
Patoutville	Fine-silty, mixed, thermic	Aeric Ochraqualfs	Alfisols.
Sharkey	Very fine, montmorillonitic, nonacid, thermic	Vertic Haplaquepts	Inceptisols.
Tunica	Clayey over loamy, montmorillonitic, nonacid, thermic	Vertic Haplaquepts	Inceptisols.
Vacherie	Coarse-silty over clayey, mixed, nonacid, thermic	Aeric Fluvaquents	Entisols.
Verdun	Fine-silty, mixed, thermic	Glossic Natraqualfs	Alfisols.

12 counties into 19 parishes on March 31, 1807 (*3*). It was named for the old ecclesiastical district of Ascension. The first settlers, exiles from Acadia, now Nova Scotia, came in 1763. Donaldsonville, the parish seat, was founded in 1806 and was the capital of Louisiana in 1830 and 1831 (*3*).

Ascension Parish historically has been a farming parish and has had large sugarcane and cotton farms and plantations. Cotton has not been an important crop in the parish since the turn of the century. According to the U.S. Census only 36 acres were planted to cotton in 1964. Sugarcane is now the major crop and is grown mainly in those areas in the parish that lie west of the Mississippi River. Sugarcane is grown east of the river but most farms there are in pasture. Vegetables and soybeans, though not extensive in acreage, are important crops. In recent years large tracts of fertile soils adjacent to the Mississippi River have been taken over by a complex of chemical, petrochemical, and basic metal industrial plants. Residential development in the north-central part of the parish is increasing.

The total number of farms in Ascension Parish has decreased from 1,455 in 1950 to 880 in 1964. The total land in farms decreased from 112,808 acres in 1950 to 92,544 acres in 1964 (*4*). The average size of farms increased from about 53 acres in 1940 to about 105 acres in 1964. In 1940 the farming industry in Ascension Parish employed 54 percent of the working population, but by 1960 this had declined to 9 percent (*4*).

In 1964, there were 18,636 acres planted to cultivated crops. Sugarcane made up about 71 percent of this area. Nearly all the sugarcane in the parish was grown on the soils of the natural levees on the alluvial plain, and most of the acreage was west of the Mississippi River. The only other cultivated crops of significant acreage were corn and soybeans. A total of 1,525 acres of corn was planted on 319 farms. In 1964, cattle totaled about 9,000 in the parish. There were 5,422 acres of improved pasture and 39,955 acres of unimproved pasture (*4*). Most of the acreage used for pasture is on the clayey soils of the alluvial plain east of the Mississippi River and on the loamy soils of the terrace uplands in the northern part of the parish.

Ascension Parish is served by three main railroad lines, one federal highway, and numerous paved state highways and parish roads. An interstate highway that traverses the parish in a north-south direction is under construction. The parish is dissected by the Mississippi River, and a four-lane toll bridge near the southern boundary of the parish crosses the river. The Mississippi River is a navigable waterway for both bargelines and ocean-going vessels.

In 1970, according to the U.S. Census, the population of the parish was 37,086. That of Donaldsonville, which is west of the Mississippi River, was 7,367; and that of Gonzales, which is east of the river, and the second largest community in the parish, was 4,512. The rest of the population is mainly rural and lives in the north-central part of the parish.

Ascension Parish has undergone considerable industrial change in the past 20 years. The mild climate, the availability of water transportation, the abundance of surface water for cooling and processing, and the ample supply of natural resources has attracted petrochemical and basic metal industrial plants to the parish. Most of the industrial plants are concentrated along the east side of the Mississippi River. Farming was formerly the major enterprise in this area.

West of the Mississippi River, sugarcane production remains the major activity. The only sugarcane mill in the parish is west of the river at McCall. Some industry, including an agricultural chemical plant, is near Donaldsonville.

Physiography and Surface Geology [6]

The three main physiographic surfaces in Ascension Parish are the terrace uplands in the northern and central parts of the parish, the natural levees along the Mississippi River in the southwestern part of the parish, and the backswamps mainly in the southern and southeastern parts of the parish. Bayou Manchac forms the northern parish boundary, and the Amite, Petite Amite, and Blind Rivers drainage system forms the northeastern boundary.

The terrace uplands, called Oak Grove Island by Russell (*5*), are blanketed by a loesslike silty layer that is several feet thick. The terrace slopes imperceptibly downward in a southeastward direction at about 2 feet per mile from areas at an elevation of more than 30 feet above sea level along the northwestern margin of the parish. Southeast of Sorrento, the elevation of the terrace declines to sea level and the terrace disappears beneath recent sediments of the backswamp. The uplands are part of a regional terrace, variously called the Prairie Formation or Port Hickey Formation by geomorphologists. The terrace sediments were deposited as a deltaic plain along the Mississippi River during the time when the next to last or Sangamon interglacial stage of the Pleistocene Epoch was taking place. Later, the terrace was tilted gently gulfward and incised by erosion during the time when the last or Wisconsin glacial stage was taking place and when the sea level was falling. The Mississippi Valley, the Amite Valley, and the Manchac Valley are among the valleys that were entrenched at that time, thus forming the escarpments along the margins of the uplands.

During the post-glacial rise in sea level, the entrenched valleys of the Mississippi River and to a lesser extent the Amite River, were partly filled with alluvium. This process is still taking place and is most pronounced in areas adjacent to the Mississippi River and its distributaries where wide natural levees have resulted. Farther from the river, lesser amounts of alluvium are deposited and this results in poorly drained backswamps.

The natural levees along the Mississippi River have an elevation of more than 20 feet above sea level on their crests adjacent to the river and an elevation of 25 feet on the west bank where the river enters the parish. The levee surfaces slope from the crests along the river downward to the backswamps at an average rate of 5 feet per mile. Consequently, the soils on the levees have fair drainage and are cultivated for a width of 2 miles or more. Almost the entire area of the parish on the west bank is a natural levee.

On the east bank, the Bluff Swamp, a broad backswamp area, is between the natural levee and the upland escarpment in the extreme northwestern part of the

[6] By C. O. DURHAM, director of the School of Geoscience, Louisiana State University, Baton Rouge.

parish. Southeast of this area the terrace upland extends close enough to the natural levee that the backswamp is poorly developed, but east of Burnside, along the southern margin of the parish, the terrace slopes downward toward the gulf enough that the backswamp is well developed and extends eastward into the Maurepas Basin and Lake beyond the parish.

Bayou Lafourche is an important Mississippi River distributary that flows south from the west bank at Donaldsonville. Its wide natural levees indicate that it served as a major Mississippi course in prehistoric time. Once important distributaries on the east bank, Bayou Manchac and New River are now inactive. Natural levees of Bayou Manchac form an alluvial ridge north of Bluff Swamp, but these levees are confined to the partly filled entrenched valley of Manchac eastward to the terrace uplands. Natural levees of New River similarly bound Bluff Swamp in the south, but deposits of alluvium have partly veneered the terrace uplands farther east, because the terrace is at a considerable lower elevation at New River than at Bayou Manchac.

The soil map accompanying this report demonstrates the close correlation of the present soils to the physiographic and geologic features in the Ascension Parish area. Relationship of soil associations to elevations and parent material is shown in figure 2 on p. 3.

Climate [7]

Ascension Parish has a warm, humid, subtropical climate characterized by relatively high rainfall. Summers are hot and humid, and prevailing winds come from the Gulf of Mexico. In winter the area alternately gets moist, mild, tropical air from the south and dry, cool, polar air from the north. Spring and fall are generally mild to warm, but some days are cool. Extremely cold weather seldom lasts for more than 3 or 4 days at a time.

The temperature is 90° F. or higher on about 83 percent of the days in July and August; a temperature higher than 100° is rare. About 17 days a year have a temperature of 32° or lower. The average date of the first temperature of 32° or lower is November 27 and that of the last temperature of 32° or lower is February 23. The growing season is about 277 days long.

The average annual rainfall is 60.3 inches. An average of more than 4 inches of moisture falls in every month, except in October when the average is 2.7 inches. Rainfall is sufficient for a wide variety of cultivated crops and pasture plants. Extended droughts are rare. Rainfall generally occurs in the form of showers or thundershowers; prolonged steady rains are infrequent and generally occur in winter. Hail occurs rarely and then only with heavy rains in spring and fall. Infrequent, excessive rain is associated with tropical cyclones. Measurable snowfall rarely occurs.

Relative humidity averages 73 percent at Baton Rouge (nearest observing station to Ascension Parish). Humidity is 80 percent or more about half the time and is less than 50 percent about one-eighth of the time. Lowest humidities, which are less than 25 percent, occur in winter after an influx of cold air.

About 40 percent of days are cloudy; 30 percent are clear; the rest are partly cloudy. Cloud cover averages slightly less in summer than in winter.

Average windspeeds are less than 10 miles per hour. Mean annual wind direction is southeasterly. Strong winds are unusual, but there have been locally damaging high winds associated with cold fronts in winter, thunderstorms in spring and summer, and dissipating tropical cyclones in autumn.

Table 8 gives data on temperature and precipitation recorded at Donaldsonville.

[7] By GEORGE W. CRY, climatologist for Louisiana, National Weather Service, U.S. Department of Commerce.

TABLE 8.—*Temperature and precipitation data*

[Data based on records from Donaldsonville for the period 1941–70]

Month	Temperature				Precipitation		
	Average daily maximum	Average daily minimum	Average highest	Average lowest	Average total	One year in 10 will have—	
						Less than—	More than—
	°F	°F	°F	°F	Inches	Inches	Inches
January	65	43	80	24	4.7	1.6	8.5
February	68	45	81	28	5.1	1.4	9.7
March	74	50	86	33	5.2	2.0	8.5
April	82	58	91	44	4.2	1.6	7.5
May	88	64	95	52	5.6	1.6	10.6
June	92	70	98	62	4.3	1.1	8.5
July	93	72	98	67	7.0	3.1	11.7
August	93	72	98	66	5.7	2.9	9.0
September	90	68	96	57	5.7	1.2	11.8
October	83	58	92	43	2.7	.6	6.2
November	73	48	85	31	4.4	.6	9.7
December	67	44	81	27	5.7	2.9	8.9
Year	81	58	[1] 99	[2] 22	60.3	46.3	71.0

[1] Average annual highest temperature.
[2] Average annual lowest temperature.

Water Supply

Ascension Parish has an abundance of water for both domestic and industrial uses from the Mississippi River, the Amite River, and numerous other streams and lakes. There are about 18 miles (9 miles on each side) of Mississippi River front in Ascension Parish. Most of this frontage has potential for deep-water ports. There is a water treatment plant at Donaldsonville that converts Mississippi River water into potable water for municipal use.

Moderate to large quantities of ground water are available throughout the parish. But poor chemical quality and the threat of saltwater encroachment in the freshwater-bearing sands is a concern in most of the parish.

In the northeastern part of the parish, large quantities of fresh, soft water are available at a depth between 600 and 3,000 feet. In the shallower sand in this area there are moderate quantities of fresh, hard water that has a relatively high content of iron.

In the southwestern part of the parish are large quantities of fresh, hard water that has a high content of iron in the sand at a depth between 200 and 300 feet. At greater depth, small to moderate quantities of slightly brackish, moderately hard water is available. In the area of the Darrow Oil Field, little or no fresh ground water is available.

In a large area that includes the northwestern, central, and southeastern parts of the parish, large quantities of fresh, soft to moderately hard ground water are available at a depth between 200 and 600 feet. In most places, however, contamination of fresh water by salt water is a serious concern if pumping is not controlled.

The water level in wells throughout the parish ranges from a few feet above the surface to about 22 feet below. In most wells it fluctuates as the river stage changes (*2*).

Natural Resources

Oil, gas, water, and timber are the principal natural resources of Ascension Parish. The Sorrento Field was the first oilfield discovered in the parish and the first east of the Mississippi River (*5*). Since the early 1930's three additional fields have been discovered and developed. Some salt domes in oilfields, such as those at McElroy Ridge and Lake Ridge in the Sorrento Field, are used for underground storage of large quantities of both gas and oil. Most gas and oil produced in the parish are moved by pipelines to other locations for processing.

The Mississippi River and other streams, lakes, and drilled wells furnish an adequate supply of water for industry, farming, and domestic use. The Mississippi River provides cheap transportation for industrial plants in the parish. Fresh water fish are found in most streams and lakes.

There are over 40,000 acres of cypress-tupelo forest in the backswamp areas of the parish. In addition, there are some large tracts that have fair stands of southern hardwoods. Pine stands are limited to several areas of loblolly pine in the northeastern part of the parish. A few small sawmills are located in the parish.

No good sand or gravel deposits are in the parish, but sand and other nonplastic material can be obtained from point bar deposits along the Mississippi River by hydraulic dredging.

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Glossary

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity (also termed available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

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

Clay film. A thin coating of clay on the surface of a soil aggregate. Synonyms: clay coat, clay skin.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrations of compounds, or of soil grains cemented together. The composition of some concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are examples of material commonly found in concretions.

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

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

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

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

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

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

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

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

Cemented.—Hard and brittle; little affected by moistening.

Field capacity (geological). The amount of water held in the soil after the excess or gravitational water has drained away. Also called capillary capacity.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic-matter content and clay but is rich in silt or very fine sand. The layer is seemingly cemented. When dry, it is hard or very hard and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick: they generally occur below the B horizon, 15 to 40 inches below the surface.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-processes. These are the major horizons:

O horizon.—The layer of organic matter on the surface of a mineral soil. This layer consists of decaying plant residues.

A horizon.—The mineral horizon at the surface or just below an O horizon. This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of humus. The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides).

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or some combination of these: (2) by prismatic or blocky structure: (3) by redder or stronger colors than the A horizon: or (4) by some combination of these. Combined A and B horizons are usually called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The weathered rock material immediately beneath the solum. In most soils this material is presumed to be like that from which the overlying horizons were formed. If the material is known to be different from that in the solum, a Roman numeral precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock usually underlies a C horizon but may be immediately beneath an A or B horizon.

Loess. Fine-grained material, dominantly of silt-sized particles, that has been deposited by wind.

Mottling, soil. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Natural levee (geological). A low ridge, generally of sands, on the rim of the bank of a large stream, formed by the initial deposition of sediment in the natural flooding of the bottomland.

Parent material. Disintegrated and partly weathered rock from which soil has formed.

Permeability. The quality that enables the soil to transmit water or air. Terms used to describe permeability are as follows: *very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

pH value. A numerical means for designating acidity and alkalinity in soils. A pH value of 7.0 indicates precise neutrality; a higher value, alkalinity; and a lower value, acidity.

Piping, soil. Subsurface erosion that causes the formation of tunnel-like cavities. The presence of such cavities or susceptibility to their formation can be, and frequently is, a limitation *or hazard* to building roads, erosion-control terraces, canals, and other structures across soils susceptible to piping.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction; an alkaline soil is one that is alkaline in reaction. In words, the degrees of acidity or alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Neutral	6.6 to 7.3
Very strongly acid	4.5 to 5.0	Mildly alkaline	7.4 to 7.8
Strongly acid	5.1 to 5.5	Moderately alkaline	7.9 to 8.4
Medium acid	5.6 to 6.0	Strongly alkaline	8.5 to 9.0
Slightly acid	6.1 to 6.5	Very strongly alkaline.	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Runoff (hydraulics). The part of the precipitation upon a drainage area that is discharged from the area in stream channels. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. Individual rock or mineral fragments in a soil that range in diameter from 0.05 to 2.0 millimeters. Most sand grains consist of quartz, but they may be of any mineral composition. The textural class name of any soil that contains 85 percent or more sand and not more than 10 percent clay.

Shrink-swell potential (engineering). Amount that a soil will expand when wet or contract when dry. Indicates kinds of clay in soil.

Silt. Individual mineral particles in a soil that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). Soil of the silt textural class is 80 percent or more silt and less than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. Technically, the part of the soil below the solum.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Terrace (geological). An old alluvial plain, ordinarily flat or undulating, bordering a river, lake, or the sea. Stream terraces are frequently called second bottoms, as contrasted to flood plains, and are seldom subject to overflow. Marine terraces were deposited by the sea and are generally wide.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Traffic pan (plowpan). A compacted layer formed in the soil immediately below the plowed layer.

Upland (geology). Land consisting of material unworked by water in recent geologic time and lying, in general, at a higher elevation than the alluvial plain or stream terrace. Land above the lowlands along rivers.

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GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and that of the soil series to which the mapping unit belongs. The capability units are not discussed separately. For a discussion of the suitability of a given soil for crops and pasture, see the discussion of the mapping unit. Other information is given in tables as follows:

Acreage and extent, table 1, page 8.
Estimated yields, table 2, page 29.
Woodland, table 3, page 30.
Wildlife, table 4, page 36.
Engineering, tables 5 and 6, pages 38 through 45.

Map symbol	Mapping unit	Described on page	Capability unit	Woodland group
			Symbol	Symbol
Ac	Acy silt loam	9	IIw-6	2w5
BA	Barbary association	9	VIIw-1	4w6
Ca	Calhoun silt loam	10	IIIw-3	2w9
Cm	Commerce silt loam	11	IIw-1	1w5
Co	Commerce silty clay loam	11	IIw-3	1w5
Cs	Convent silt loam	12	IIw-1	1w5
CV	Convent soils, frequently flooded	12	Vw-2	1w6
Dp	Deerford-Patoutville complex	13	IIw-5	-----
	Deerford soil	----	------	2w8
	Patoutville soil	----	------	1w8
Dv	Deerford-Verdun complex	13	IIIs-1	-----
	Deerford soil	----	------	2w8
	Verdun soil	----	------	3t9
Es	Essen silt loam	15	IIw-6	1w8
FA	Fausse association	15	VIIw-1	3w6
FG	Fausse-Galvez association	16	VIIw-1	-----
	Fausse soil	----	------	3w6
	Galvez soil	----	------	2w5
Fo	Foley-Deerford complex	17	IIIw-4	-----
	Foley soil	----	------	3w9
	Deerford soil	----	------	2w8
Fr	Frost silt loam	18	IIIw-3	2w9
Ga	Galvez silt loam	19	IIw-2	2w5
Gb	Galvez silty clay loam	19	IIw-4	2w5
Je	Jeanerette silt loam	20	IIw-6	2w5
MeE	Memphis complex, 5 to 30 percent slopes	20	VIe-1	-----
	Soils that have slopes of 5 to 17 percent	----	------	2o7
	Soils that have slopes of 17 to 30 percent	----	------	2r8
Ov	Olivier silt loam	22	IIw-5	1w8
Sa	Sharkey silty clay loam	23	IIIw-2	2w6
Sc	Sharkey clay	23	IIIw-1	2w6
Sf	Sharkey clay, frequently flooded	23	Vw-1	3w6
Tu	Tunica clay	25	IIIw-1	2w6
Va	Vacherie silt loam	25	IIw-1	1w5

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