SOIL SURVEY OF

Lamar County, Mississippi

United States Department of Agriculture
Soil Conservation Service
In cooperation with
Mississippi Agricultural and Forestry
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 1965–69. Soil names and descriptions were approved in 1969. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1971. This survey was made cooperatively by the Soil Conservation Service and the Mississippi Agricultural and Forestry Experiment Station. It is part of the technical assistance furnished to the Lamar County Soil and Water Conservation District, organized in 1945.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms, pastures, 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 Lamar County 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 of each. It also shows the page where each soil is described and the woodland group in which the soil has been placed.

Individual colored maps that show 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 that have a moderate limitation can be colored yellow, and those that have 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 discussions of the capability units and woodland groups.

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

Game managers, sportsmen, and others can find information about soils and wildlife in the section "Wildlife."

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 "Town and Country Planning."

Engineers and builders can find, under "Engineering Uses of the Soils," 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 Lamar County may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the information about the county in the section "General Nature of the County."

Cover: A stand of longleaf pine on McLaurin fine sandy loam, 2 to 5 percent slopes, woodland group 2o1.

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Issued October 1975

SOIL SURVEY OF LAMAR COUNTY, MISSISSIPPI

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

LAMAR COUNTY, in the southeastern part of Mississippi (fig. 1), has a land area of 320,000 acres, or 500 square miles. It is bordered by Forrest County on the east, Covington and Jefferson Davis Counties on the north, Marion County on the west, and Pearl River County on the south. Purvis, the county seat, is in the southeastern part of the county.

Forest products, beef cattle, and soybeans are the major sources of farm income.

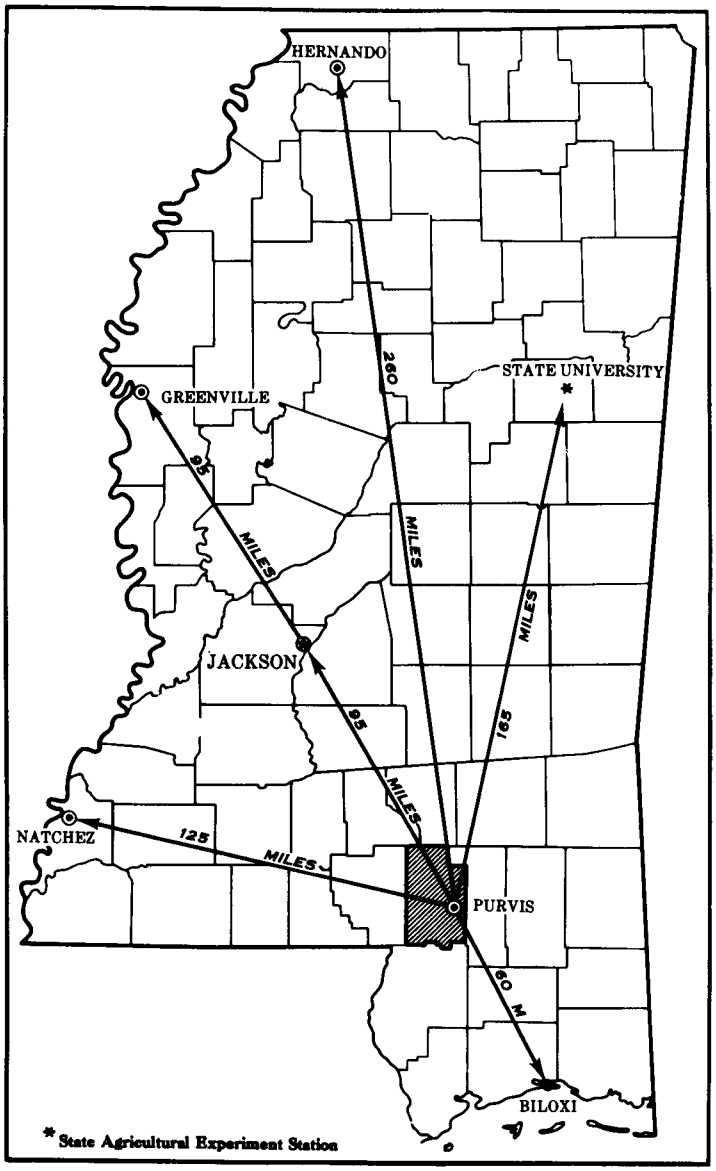

Figure 1.—Location of Lamar County in Mississippi.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soil are in Lamar County, where they are located, and how they can be used. The soil scientists went into the county knowing they likely would 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. Baxterville and McLaurin, for example, are the names of two soil series. All the soils in the United States that have 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, McLaurin fine sandy loam, 2 to 5 percent slopes, is one of several phases within the McLaurin 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 in the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning 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. Two such kinds of mapping units are shown on the soil map of Lamar County: soil associations and undifferentiated groups.

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. McLaurin-Lucy association, rolling, 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, separating them is of little value. 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. The name of an undifferentiated group consists of the names of the dominant soils, joined by "and." Freestone, Susquehanna, and Prentiss soils, 5 to 12 percent slopes, is an example.

In most areas surveyed there are places where the soil material is so variable that it cannot be classified by soil series. These places are shown on the soil map and are described in the survey, but they are called land types and are given descriptive names. Sandy alluvial land is a land type in Lamar County.

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

Soil scientists observe how soils behave when used as a growing medium for native and cultivated plants and as material for structures, foundations for structures, or covering for structures. They relate this behavior to properties of 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 Lamar County. 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 may occur in another, but in a different pattern.

A map that shows soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of 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 similar structure, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect their management.

The soil associations in Lamar County are discussed in the pages that follow.

1. *Freestone-Susquehanna-Prentiss association*

Somewhat poorly drained and moderately well drained, gently sloping to sloping and rolling soils that have a loamy or clayey subsoil; some have a fragipan

This association is mostly in the northeastern and southwestern parts of the county, and a small area is in the central part. It is dissected by numerous short drainageways. Gently sloping soils are on the narrow ridgetops, and gently sloping to sloping soils are on the sides of ridges and on narrow flood plains of the smaller streams in the county.

This association makes up about 10 percent of the county. It is about 23 percent Freestone soils, 22 percent Susquehanna soils, and 18 percent Prentiss soils. The rest is Baxterville, Benndale, and Falkner soils.

Freestone soils are on the middle and upper sides of ridges. They are moderately well drained or somewhat poorly drained. They have a surface layer of grayish-brown sandy loam and a subsurface layer of pale-brown sandy loam. The subsoil is strong-brown sandy clay loam to a depth of 28 inches and clay mottled with shades of gray, red, and brown in the lower part.

Susquehanna soils are generally on the mid and lower slopes. They are poorly drained. They have a surface layer of grayish-brown silt loam. The subsoil is pale-brown silt loam in the upper 7 inches and clay mottled with shades of gray, brown, and red in the lower part.

Prentiss soils are generally on ridgetops and the upper slopes. They are moderately well drained. They have a surface layer of very dark grayish-brown fine sandy loam. The subsoil is yellowish-brown loam that is mottled with strong brown in the lower part. It is underlain at a depth of about 27 inches by a loam fragipan mottled with shades of brown and gray.

Nearly all of this association is wooded (fig. 2), and about 5 percent is used for pasture. The soils of this association have only a limited use for crops, because they are clayey and lack uniformity in soil pattern.

Most of this association is in large wooded tracts

Figure 2.—**A six-year-old plantation of slash pine in the Freestone-Susquehanna-Prentiss association.**

owned by timber companies. A few homesteads and small farms, generally less than 300 acres in size, are scattered throughout the association.

2. *McLaurin-Prentiss association*

Well drained and moderately well drained, nearly level to moderately steep soils that have a loamy subsoil; some have a fragipan

This association is on narrow ridgetops, sides of ridges, and narrow flood plains. Nearly level to gently sloping soils are on the ridgetops, and sloping to moderately steep soils are on the sides of ridges.

This association makes up about 20 percent of the county. It is 50 percent McLaurin soils and 31 percent Prentiss soils. The rest is Baxterville, Benndale, and Freestone soils.

McLaurin soils generally are on ridgetops and the upper slopes. They are well drained. They have a surface layer of dark grayish-brown fine sandy loam and a subsurface layer of yellowish-brown fine sandy loam. The subsoil is yellowish-red sandy loam and loam.

Prentiss soils are on the broader ridgetops and the upper slopes. They are moderately well drained. They have a surface layer of very dark grayish-brown fine sandy loam. The subsoil is yellowish-brown loam mottled with strong brown in the lower part. It is underlain at a depth of about 27 inches by a loam fragipan mottled with shades of brown and gray.

About 75 percent of this association is wooded, and 25 percent is used mainly for crops, pasture, and pecan orchards. The nearly level and gently sloping soils on ridgetops are suitable for crops, and the steeper soils are better suited to pasture or woodland. The main crop is soybeans; a smaller acreage is in corn and cotton.

Most of this association is in large wooded tracts. Many farms, ranging from 40 to 600 acres in size, are scattered throughout the association.

3. *McLaurin-Prentiss-Freestone association*

Well drained to somewhat poorly drained, nearly level to strongly sloping soils that have a loamy subsoil; some have a fragipan

This association is mostly in the Black Creek drainage area. It is dissected by small drainageways. Nearly level to gently sloping soils are on the ridgetops, and sloping and strongly sloping soils are on the sides of ridges. Poorly drained soils of minor extent are on the flood plain.

This association makes up about 36 percent of the county. It is about 33 percent McLaurin soils, 12 percent Prentiss soils, and 8 percent Freestone soils. The rest is Baxterville, Benndale, Susquehanna, and Dorovan soils.

McLaurin soils are on broad, convex ridgetops and upper slopes. They are well drained. They have a sur-

face layer of dark grayish-brown fine sandy loam and a subsurface layer of yellowish-brown fine sandy loam. The subsoil is yellowish-red sandy loam and loam.

Prentiss soils are at lower elevations and have more nearly level topography than McLaurin soils. They are moderately well drained. They have a surface layer of very dark grayish-brown fine sandy loam. The subsoil is yellowish-brown loam that has strong-brown mottles in the lower part. It is underlain at a depth of about 27 inches by a loam fragipan mottled with shades of brown and gray.

Freestone soils are on mid and lower slopes. They are moderately well drained or somewhat poorly drained. They have a surface layer of grayish-brown sandy loam and a subsurface layer of pale-brown sandy loam. The subsoil is strong-brown sandy clay loam in the upper part and clay mottled with shades of gray and brown in the lower part.

About 70 percent of this association is wooded, about 20 percent is used for pasture, and about 10 percent is used for crops. The main crops are soybeans, corn, cotton, and pecans.

Most of this association is in large wooded tracts. About 40 percent is in farms that range from 40 to 300 acres in size.

4. *McLaurin-Lucy association*

Well-drained, nearly level to moderately steep soils that have a loamy subsoil

This association is in the south-central part of the county. Nearly level to sloping soils are on the ridgetops, and sloping to moderately steep soils are on the sides of ridges. Organic soils underlain by sand at varying depths are on most flood plains.

This association makes up about 30 percent of the county. It is about 50 percent McLaurin soils and 15 percent Lucy soils. The rest is Cahaba, Baxterville, and Dorovan soils.

McLaurin soils are on ridgetops and upper slopes. They are well drained. They have a surface layer of dark grayish-brown fine sandy loam and a subsurface layer of yellowish-brown fine sandy loam. The subsoil is yellowish-red sandy loam and loam.

Lucy soils are on the mid and lower slopes. They are well drained. They have a surface layer of dark-gray loamy sand and a subsurface layer of pale-yellow sand. The subsoil is sandy loam. It is reddish yellow in the upper part and red in the lower part and extends to a depth of more than 73 inches.

About 70 percent of this association is wooded, and about 30 percent is used for pasture and crops.

Most of this association is in large wooded tracts. A few farms, ranging from 80 to 600 acres in size, are located in areas of smoother topography.

5. *Trebloc-Osier association*

Poorly drained and very poorly drained, nearly level soils that are loamy to sandy below the surface layer; on flood plains

This association is on the flood plains of Black Creek and Little Black Creek, two of the larger streams in the county. It consists of nearly level soils that are mainly wet. Channels range from 2 to 10 feet deep. Remnants of old channels and low areas are generally wet.

This association makes up about 4 percent of the county. It is about 43 percent Trebloc soils and 40 percent Osier soils. The rest is Basin, Dorovan, Mashulaville, and Pamlico soils.

Trebloc soils are generally in slackwater areas. They are poorly drained. They have a surface layer of very dark gray silt loam and a subsurface layer of silt loam mottled with shades of gray and brown. The subsoil is gray and light-gray silt loam, silty clay loam, and silty clay mottled with shades of brown.

Osier soils are generally near channels and areas associated with networks of channels. They are very poorly drained. They have a surface layer of very dark grayish-brown mucky sandy loam. The underlying material is dark grayish-brown mucky loamy sand in the upper part and light-gray loamy sand in the lower part.

Most of this association is wooded, but some areas are used for pasture.

Most of this association is in large wooded tracts. A few farms, ranging from 30 to 600 acres in size, extend from the uplands into this association.

Descriptions of the Soils

This section describes the soil series and mapping units in Lamar County and the use and management of soils for crops.

The procedure in this section is first to describe the soil series and then the mapping units in the series. Thus, to get full information on any one mapping unit, it is necessary to read the description of the unit and also the description of the soil series to which it belongs. As mentioned in the section "How This Survey Was Made," not all mapping units are of a soil series. For example, Sandy alluvial land is a miscellaneous land type and does not belong to a soil series; nevertheless, it is listed in alphabetic order along with the series.

An essential part of each soil series is the description of the soil profile, the sequence of layers beginning at the surface and continuing downward to the depth beyond which roots of most plants do not penetrate. Each soil series contains both a brief nontechnical and a detailed technical description of the soil profile. The nontechnical description is useful to most readers. The detailed technical description is included for soil scientists, engineers, and others who need to make thorough and precise studies of soils. Unless otherwise stated, colors given in the descriptions are those of a moist soil.

Most of Lamar County was mapped at medium intensity, that is, showing an average amount of detail, but a large part was mapped at low intensity, or minimum detail. The composition of units mapped at low intensity is more variable than that of units mapped at medium intensity, but composition has been controlled well enough to allow interpretations for expected uses.

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 are the capability unit and woodland group in which the mapping unit has been placed. These also can be learned by referring to the "Guide to Mapping Units" at the back of this survey.

The approximate acreage and proportionate extent

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

Soil	Acres	Percent
Basin fine sandy loam	5,900	1.8
Baxterville fine sandy loam, 2 to 5 percent slopes	9,000	2.8
Baxterville fine sandy loam, 5 to 8 percent slopes	1,080	0.3
Benndale fine sandy loam, 2 to 5 percent slopes	1,800	.5
Dorovan and Pamlico mucks	5,900	1.8
Falkner silt loam, 2 to 5 percent slopes	2,750	.9
Freestone–McLaurin–Susquehanna association, rolling	36,970	11.5
Freestone, Susquehanna, and Prentiss soils, 5 to 12 percent slopes	19,950	6.2
Lakeland sand, 2 to 12 percent slopes	1,870	.6
Latonia fine sandy loam	2,970	.9
Mashulaville fine sandy loam	3,950	1.2
McLaurin fine sandy loam, 0 to 2 percent slopes	890	.3
McLaurin fine sandy loam, 2 to 5 percent slopes	65,860	20.7
McLaurin fine sandy loam, 5 to 8 percent slopes	18,100	5.7
McLaurin and Cahaba soils, 8 to 12 percent slopes	7,400	2.3
McLaurin–Lucy association, rolling	61,000	19.0
Prentiss fine sandy loam, 0 to 2 percent slopes	3,760	1.1
Prentiss fine sandy loam, 2 to 5 percent slopes	25,300	7.9
Prentiss fine sandy loam, 5 to 8 percent slopes	3,800	1.2
Sandy alluvial land	1,000	.3
Susquehanna silt loam, 2 to 5 percent slopes	4,000	1.1
Susquehanna silt loam, 5 to 12 percent slopes	3,250	1.0
Trebloc silt loam	900	.3
Trebloc and Osier soils	32,600	10.4
Total	320,000	100.0

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 (*9*).[1]

Basin Series

The Basin series consists of somewhat poorly drained soils that formed in loamy material. Slopes are 0 to 2 percent.

In a representative profile the surface layer is very dark gray fine sandy loam about 5 inches thick, and the subsurface layer is pale-brown fine sandy loam about 3 inches thick. The subsoil extends to a depth of 61 inches and is fine sandy loam throughout. In sequence from the top, it is 8 inches of light yellowish brown mottled with shades of brown, gray, and red; 23 inches mottled with shades of gray, brown, and red and compact and brittle in the red part; and 22 inches of light gray mottled with shades of red and brown.

Representative profile of Basin fine sandy loam in a pasture 4.4 miles west of Belleview Baptist Church, 1.1 miles north of U.S. Highway 98, and 0.3 mile west of blacktop road, 300 feet north of gravel road; sec. 18, T. 4 N., R. 15 W.

Ap—0 to 5 inches, very dark gray (10YR 3/1) fine sandy loam; weak, medium, granular structure; very friable; many fine roots; brown (7.5YR 4/4) stains around fine root channels; very strongly acid; abrupt, smooth boundary.

A2—5 to 8 inches, pale-brown (10YR 6/3) fine sandy loam; few, fine, distinct mottles of olive yellow; weak, fine and medium, granular structure; very friable; few fine roots; brown (7.5YR 4/4) root stains around fine roots and in root channels; very strongly acid; clear, wavy boundary.

B21t—8 to 16 inches, light yellowish-brown (2.5YR 6/4) fine sandy loam; common, medium, distinct mottles of yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8), common, coarse, distinct mottles of light gray (2.5Y 7/2), and few, medium, prominent mottles of red (2.5YR 5/8); weak, medium, subangular blocky structure; friable; some sand grains coated and bridged with clay in yellowish-brown and strong-brown areas; few fine roots; strongly acid; gradual, wavy boundary.

B22t&A'2—16 to 20 inches, mottled light brownish-gray (2.5Y 6/2) and yellowish-brown (10YR 5/6) fine sandy loam; weak, medium, subangular blocky structure; light brownish-gray part is friable, yellowish-brown part is brittle and compact; few, medium, dark-brown and black concretions; strongly acid; clear, irregular boundary.

B23t—20 to 39 inches, mottled light yellowish-brown (2.5Y 6/4), strong-brown (7.5YR 5/8), gray (10YR 6/1), and red (2.5YR 5/8) fine sandy loam; weak, fine and medium, subangular blocky structure; yellowish-brown, red, and strong-brown part is firm, compact and brittle, gray part is friable; few voids; patchy clay films; 10 to 15 percent plinthite; few, fine, red concretions; very strongly acid; clear, irregular boundary.

B24tg—39 to 50 inches, light-gray (2.5Y 7/2) fine sandy loam; many, coarse, prominent, strong-brown (7.5 YR 5/8) mottles and few, fine, prominent, red mottles; weak, medium, subangular blocky structure; light-gray part is friable, strong-brown and red part is compact and brittle; sand grains coated and bridged with clay; few patchy clay films; about 5 percent plinthite nodules; very strongly acid; clear, irregular boundary.

B3g—50 to 61 inches, light-gray (2.5Y 7/2) fine sandy loam; many, coarse, distinct, yellowish-brown (10 YR 5/8) and strong-brown (7.5YR 5/6) mottles; weak, medium, subangular blocky structure; friable; strongly acid.

The A1 horizon is very dark gray, dark grayish brown, or very dark grayish brown. The A2 horizon, where present, is pale brown, gray, or grayish brown. The A horizon is very fine sandy loam, fine sandy loam, loam, or sandy loam. The B21t horizon is light yellowish brown, yellowish brown, brownish yellow, or very pale brown mottled with shades of brown, yellow, gray, or red. The B22t&A'2 and B23t horizons are mottled with shades of gray, brown, and red or have a matrix of yellowish brown or light yellowish brown mottled with shades of gray, brown, and red. The B24t and B3 horizons are mottled with shades of brown, gray, and red or have a matrix of gray or light gray mottled with shades of brown, gray, and red. The B horizon is fine sandy loam, loam, or sandy loam. Content of plinthite ranges from 5 to 20 percent in the B23t and B24tg horizons. Reaction is strongly acid or very strongly acid throughout the profile.

Basin soils are associated with Latonia, Mashulaville, and Trebloc soils. They differ from these soils in having more than 5 percent plinthite in the B horizon. They are less gray in the upper part of the B horizon than Mashulaville and Trebloc soils, and they are better drained. They have less silt than Trebloc soils. They are more poorly drained than Latonia soils, and they are more gray in the B horizon.

Basin fine sandy loam (Ba).—This is a somewhat poorly drained soil on uplands and stream terraces. Small areas of Mashulaville, Trebloc, and Latonia soils are included in mapping.

This soil is strongly acid or very strongly acid.

[1] Italic numbers in parentheses refer to Literature Cited, p. 42.

Permeability and runoff are slow. The available water capacity is medium.

About 70 percent of the acreage is wooded. Small areas are used for row crops or pasture. This soil is suited to cotton, corn, soybeans, oats, and pasture plants. It is well suited to pine and adapted hardwood trees.

Drainage of the surface by V- and W-shaped ditches, the return of crop residue, and adequate fertilization are needed if this soil is used for row crops. Capability unit IIIw–1; woodland group 2w8.

Baxterville Series

The Baxterville series consists of moderately well drained soils that formed in loamy material. Slopes are 2 to 8 percent.

In a representative profile the surface layer is dark grayish-brown fine sandy loam about 3 inches thick, and the subsurface layer is light olive-brown fine sandy loam about 6 inches thick. The subsoil extends to a depth of 68 inches or more. The upper 20 inches is yellowish-red loam that contains reddish plinthite that increases with increasing depth. The lower part is red or dark-red clay loam mottled with strong brown, light gray, brown, and gray.

Representative profile of Baxterville fine sandy loam, 2 to 5 percent slopes, in a wooded area 0.75 mile southeast of Baxterville School on rural road and 30 feet east; NW¼SW¼ sec. 2, T. 1 N., R. 16 W.

A1—0 to 3 inches, dark grayish-brown (2.5Y 4/2) fine sandy loam; moderate, medium, granular structure; friable; many fine and coarse roots; few charcoal fragments; very strongly acid; clear, smooth boundary.

A2—3 to 9 inches, light olive-brown (2.5Y 5/4) fine sandy loam; weak, fine and medium, subangular blocky structure; friable; common fine and medium roots; very strongly acid; clear, smooth boundary.

B21t—9 to 20 inches, yellowish-red (5YR 4/6) loam; few, medium, distinct, red (2.5YR 4/6) mottles; moderate, subangular blocky structure; friable; few fine and medium roots; less than 2 percent plinthite; sand grains coated and bridged with clay; few patchy clay films on ped faces; very strongly acid; clear, wavy boundary.

B22t—20 to 29 inches, yellowish-red (5YR 4/8) loam; common, medium, distinct, red (2.5YR 4/6) mottles; moderate, medium, angular and subangular blocky structure; friable; about 12 percent plinthite; few patchy clay films on ped faces; very strongly acid; gradual, wavy boundary.

B23t—29 to 42 inches, red (10R 4/6) clay loam; weak, coarse, prismatic structure parting to moderate, fine and medium, subangular blocky; firm, slightly brittle and compact; few fine voids; about 20 percent plinthite; continuous clay films on ped faces; few, patchy, yellowish-brown coatings on prism faces; very strongly acid; gradual, smooth boundary.

B24t—42 to 52 inches, red (10R 4/6) clay loam; many, medium, distinct, brown (7.5YR 5/4) mottles and common, fine, prominent, gray mottles; weak, coarse, prismatic structure parting to moderate, medium, subangular blocky; firm, slightly brittle and compact; common fine voids; continuous clay films on ped faces; patchy yellowish-brown coatings on prism faces; very strongly acid; gradual, wavy boundary.

B25t—52 to 68 inches, dark-red (10R 3/6) clay loam; many, medium, prominent, light-gray (2.5Y 7/1) and strong-brown (7.5YR 5/8) mottles; weak, coarse, prismatic structure parting to moderate, medium, subangular blocky; firm, slightly brittle and compact; patchy clay films on ped faces; patchy yellowish-brown coatings on prism faces; very strongly acid.

The A1 horizon is very dark grayish brown, dark grayish brown, or brown. The A2 horizon, where present, is dark grayish brown, yellowish brown, brownish yellow, or light olive brown. The upper part of the Bt horizon is yellowish-red or red loam or sandy clay loam. The lower part of the Bt horizon is red or dark-red clay loam or loam. Content of plinthite between depths of 20 and 50 inches ranges from 5 to 25 percent. Mottles in shades of brown and gray are common between depths of 42 and 68 inches. Reaction is strongly acid and very strongly acid throughout the profile.

Baxterville soils are associated with Falkner and Prentiss soils. They are better drained, have a redder B horizon, and have less silt than Falkner soils. They do not have the fragipan that is characteristic of Prentiss soils, and they are redder and finer textured in the B horizon.

Baxterville fine sandy loam, 2 to 5 percent slopes (BeB).—This is a moderately well drained soil on uplands. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Prentiss soils and soils that are similar to this Baxterville soil, but are browner, are sandy loam in the upper part of the subsoil, and do not have reddish nodules.

This Baxterville soil is strongly acid or very strongly acid. Permeability is moderately slow, and runoff is medium. The available water capacity is medium. The hazard of erosion is slight in cultivated areas.

Most of the acreage is wooded. A small acreage is used for row crops or pasture. This soil is well suited to cotton, corn, soybeans, oats, pasture plants, and pine trees.

Contour farming, stripcropping, the return of crop residue, adequate fertilization, parallel terraces, and grassed waterways are needed if this soil is used for row crops. Capability unit IIe–1; woodland group 2o1.

Baxterville fine sandy loam, 5 to 8 percent slopes (BeC).—This is a moderately well drained soil on uplands. The surface layer is very dark grayish-brown fine sandy loam about 3 inches thick. The upper part of the subsoil is yellowish-red loam. The lower part is mottled brownish-yellow and yellowish-red loam that has reddish nodules and extends to a depth of about 60 inches.

Included with this soil in mapping are small areas of Prentiss soils and soils that are similar to this Baxterville soil, but are brownish sandy loam in the upper part of the subsoil and do not have reddish nodules.

This soil is strongly acid or very strongly acid. Permeability is moderately slow, and runoff is medium. The available water capacity is medium. The hazard of erosion is moderate in cultivated areas.

Most of the acreage is wooded. A small acreage is used for pasture or row crops. This soil is well suited to cotton, corn, soybeans, oats, pasture plants, and pine trees.

Contour farming, stripcropping, the return of crop residue, adequate fertilization, parallel terraces, and grassed waterways are needed if this soil is used for row crops. Capability unit IIIe–1; woodland group 2o1.

Benndale Series

The Benndale series consists of well-drained soils that formed in loamy material. Slopes are 2 to 5 percent.

In a representative profile the surface layer is dark grayish-brown fine sandy loam about 4 inches thick, and the subsurface layer is pale-brown fine sandy loam about 8 inches thick. The subsoil extends to a depth of 61 inches or more. The upper 28 inches is strong-brown and yellowish-brown sandy loam. The next 7 inches is brownish-yellow loam mottled with yellowish red. The lower part is yellowish-red sandy loam mottled with pale brown and brownish yellow.

Representative profile of Benndale fine sandy loam, 2 to 5 percent slopes, in a wooded area three-fourths mile northwest of southeast corner of the county, one-fourth mile southwest of county road, 50 feet east of woods road; NW¼NE¼ sec. 25, T. 1 N., R. 14 W.

A1—0 to 4 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, medium, granular structure; very friable; very strongly acid; clear, smooth boundary.

A2—4 to 12 inches, pale-brown (10YR 6/3) fine sandy loam; weak, medium, granular structure; very friable; very strongly acid; clear, smooth boundary.

B21t—12 to 29 inches, strong-brown (7.5YR 5/6) sandy loam; weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; few patchy clay films; very strongly acid; gradual, smooth boundary.

B22t—29 to 40 inches, yellowish-brown (10YR 5/8) sandy loam; weak, coarse, subangular blocky structure; friable; sand grains coated and bridged with clay; few pockets of uncoated sand grains; very strongly acid; clear, smooth boundary.

B23t—40 to 47 inches, brownish-yellow (10YR 6/6) loam; common, medium, distinct, yellowish-red (5YR 4/6) mottles; weak, medium and coarse, angular and subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; clear, smooth boundary.

B24t—47 to 61 inches, yellowish-red (5YR 4/8) sandy loam; common, medium, distinct, pale-brown (10YR 6/3) and brownish-yellow (10YR 6/6) mottles; moderate, medium and coarse, angular and subangular blocky structure; firm, slightly compact; patchy gray coatings on ped faces; few plinthite nodules; few clay films on ped faces; very strongly acid.

The A1 horizon is dark gray, dark grayish brown, very dark grayish brown, or grayish brown. The A2 horizon, where present, is brown or pale brown. The upper part of the Bt horizon is strong brown, brownish yellow, or yellowish brown. The lower part of the Bt horizon is yellowish red, strong brown, or brownish yellow mottled with light yellowish brown, brownish yellow, pale brown, or light gray. The Bt horizon ranges from sandy loam to loam. Content of plinthite ranges from 0 to 5 percent. Reaction is strongly acid or very strongly acid throughout the profile.

Benndale soils are associated with McLaurin and Prentiss soils. They are less red in the upper part of the Bt horizon than McLaurin soils. They do not have the fragipan that is characteristic of Prentiss soils, and they are better drained.

Benndale fine sandy loam, 2 to 5 percent slopes (BnB).—This is a well-drained soil on uplands. Small areas of McLaurin and Prentiss soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is moderate, and runoff is slow. The available water capacity is medium. The hazard of erosion is slight in cultivated areas.

Most of the acreage is wooded. A small acreage is used for row crops or pasture. This soil is well suited to cotton, corn, soybeans, oats, pasture plants, and pine trees.

Contour farming, stripcropping, the return of crop residue, adequate fertilization, parallel terraces, and grassed waterways are needed if this soil is used for row crops. Capability unit IIe–1; woodland group 2o1.

Cahaba Series

The Cahaba series consists of well-drained soils that formed in loamy material. Slopes are 8 to 12 percent.

In a representative profile the surface layer is dark grayish-brown fine sandy loam about 2 inches thick, and the subsurface layer is pale-brown fine sandy loam about 5 inches thick. The subsoil extends to a depth of 52 inches. The upper part is yellowish-red sandy clay loam. The lower 36 inches is yellowish-red sandy loam that has yellow mottles in the lower part. The underlying material is sandy loam mottled with shades of red, yellow, and gray.

In Lamar County Cahaba soils are mapped only with McLaurin soils.

Representative profile of Cahaba fine sandy loam in a wooded area of McLaurin and Cahaba soils, 8 to 12 percent slopes, about 2.5 miles west of Lumberton on State Highway 13 and north on county road about 1.1 mile, 200 feet west of road; SE¼SE¼ sec. 16, T. 1 N., R. 15 W.

A1—0 to 2 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, medium, granular structure; friable; very strongly acid; clear, smooth boundary.

A2—2 to 7 inches, pale-brown (10YR 6/3) fine sandy loam; weak, medium, granular structure; friable; very strongly acid; clear, smooth boundary.

B2t—7 to 16 inches, yellowish-red (5YR 4/8) sandy clay loam; weak, medium, subangular blocky structure; friable; few medium pebbles; patchy clay films; very strongly acid; gradual, wavy boundary.

B31t—16 to 35 inches, yellowish-red (5YR 5/8) sandy loam; weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual, wavy boundary.

B32t—35 to 52 inches, yellowish-red (5YR 5/6) sandy loam; common, medium, distinct mottles of yellow (10YR 7/6); weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; few uncoated sand grains; very strongly acid; gradual, wavy boundary.

C—52 to 61 inches, mottled yellowish-red (5YR 5/8), brownish-yellow (10YR 6/6), and light-gray (10 YR 7/1) sandy loam; structureless; single grained; friable; uncoated sand grains; very strongly acid.

The A1 horizon is dark grayish brown or dark gray, and it ranges from 2 to 6 inches in thickness. The A2 horizon is pale brown, brown, or yellowish brown, and it ranges from 2 to 8 inches in thickness. The B2t horizon is red or yellowish-red sandy clay loam, loam, or clay loam. The B3t horizon is red or yellowish-red loam or sandy loam. The C horizon is sandy loam or loamy sand. Reaction is strongly acid or very strongly acid throughout the profile.

Cahaba soils are associated with Lucy and McLaurin soils. They differ from Lucy soils in having a surface layer of fine sandy loam less than 20 inches thick. They are finer textured than McLaurin soils. They differ from Lucy and McLaurin soils in having a solum less than 60 inches thick.

Cahaba soils in Lamar County have a slightly thicker solum than is defined as the range for the series, but this difference does not alter their usefulness and behavior.

Dorovan Series

The Dorovan series consists of very poorly drained organic soils on flood plains. Slopes are 0 to 2 percent.

In a representative profile the surface layer is very dark grayish-brown muck about 26 inches thick. Below this is black muck that extends to a depth of more than 65 inches.

Representative profile of Dorovan muck on a wooded flood plain of Dorovan and Pamlico mucks 2 miles west

of U.S. Highway 11 and 100 feet north of the Purvis-Greenville road, on a tributary of Boggy Hollow Creek; SE¼NW¼ sec. 7, T. 2 N., R. 14 W.

Oe1—0 to 26 inches, very dark grayish-brown (10YR 3/2) muck; partly decomposed leaves, twigs, and roots; many tree roots; very strongly acid; diffuse, wavy boundary.

Oa1—26 to 65 inches, black (10YR 2/1) muck; common undecomposed bits of woody material; very strongly acid.

The Oe1 horizon is very dark gray or very dark grayish brown and is 40 to 60 percent unrubbed fiber. Live tree roots are common to many. The Oa1 horizon is black or very dark brown muck that contains few to common bits of undecomposed woody material. Sunken logs and large woody fragments are many to common in the lower part of the Oa1 horizon. A IICg horizon, where present, is at a depth of more than 60 inches. It is sand or loamy sand. Reaction is strongly acid or very strongly acid throughout the profile.

Dorovan soils are associated with Pamlico soils. They have a thicker layer of organic material than Pamlico soils and extend to a depth of more than 60 inches.

Dorovan and Pamlico mucks (Dp).—This mapping unit consists of very poorly drained Dorovan and Pamlico mucks on densely vegetated flood plains where organic matter has accumulated under wet conditions over a long period of time. These soils are associated on the landscape, but not in a regular pattern. Some areas are made up entirely of one of these soils, but most places consist of both soils. Areas generally are larger and the composition more variable for this mapping unit than for most others in the county.

Dorovan soils make up about 65 percent of the unit, Pamlico soils about 30 percent, and poorly drained mineral soils 5 percent.

The Dorovan soils have the profile described as representative of the Dorovan series. They are strongly acid or very strongly acid. The available water capacity is very high. Permeability and runoff are very slow.

The Pamlico soils have a surface layer of very dark grayish-brown muck about 8 inches thick. Below this is very dark gray muck that extends to a depth of about 48 inches. Light-gray sand extends to a depth of more than 60 inches. These soils are strongly acid or very strongly acid. The available water capacity is very high. Permeability is slow, and runoff is very slow.

Almost all of the acreage is wooded. Because these soils are wet and boggy, they are better suited to trees than to other uses. They are suited to adapted hardwood trees, mainly magnolia, southern sweetbay, sweetbay, and swamp blackgum.

Equipment limitations and seedling mortality are the main management concerns. This mapping unit will not support logging equipment, and tree planting is not recommended. Excellent regeneration of existing woodland can be obtained by a combination of natural seeding and coppice. For reproduction, clean openings must be provided in the canopy to allow direct sunlight to reach the surface soil. The principal wood products are excelsior or pulpwood. If this unit is to be used for crops, the highest probable crop growth is obtained by using a short rotation.

The included poorly drained, slightly sloping mineral soils are on ridges along the main watercourse or on small ridges that extend into this unit. These areas and a very narrow edge around this mapping unit support yellow-poplar, blackgum, slash pine, loblolly pine, red maple, and water oak. Understory species along these edges are titi, black alder, waxmyrtle, and greenbrier. Capability unit VIIw–1; woodland group 4w9.

Falkner Series

The Falkner series consists of somewhat poorly drained soils that formed partly in loamy material high in content of silt and partly in the underlying clayey material.

In a representative profile the surface layer is dark grayish-brown silt loam about 3 inches thick. The subsoil extends to a depth of about 60 inches. The upper 14 inches is light yellowish-brown to yellowish-brown silt loam mottled with dark grayish brown and strong brown. The middle 10 inches is pale-yellow silt loam mottled with shades of red, yellow, and gray. The lower part is clay mottled with shades of gray, brown, yellow, and red.

Representative profile of Falkner silt loam, 2 to 5 percent slopes, in a wooded area 3½ miles north of Lumberton and 3 miles northwest of the Seneca community; SW¼NW¼ sec. 12, T. 1 N., R. 15 W.

A1—0 to 3 inches, dark grayish-brown (10YR 4/2) silt loam; weak, medium, granular structure; friable; very strongly acid; clear, smooth boundary.

B1—3 to 8 inches, light yellowish-brown (10YR 6/4) silt loam; many, fine, distinct, dark grayish-brown (10YR 4/2) mottles; weak, medium, granular structure; friable; very strongly acid; clear, smooth boundary.

B21t—8 to 17 inches, yellowish-brown (10YR 5/6) silt loam; common, medium, distinct, strong-brown (7.5YR 5/6) mottles; weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; few patchy clay films on ped faces; very strongly acid; gradual, wavy boundary.

B22t—17 to 27 inches, pale-yellow (2.5Y 7/4) silt loam; common, medium, distinct mottles of brownish yellow (10YR 6/6), common, medium, prominent mottles of red (2.5YR 4/8), and many, fine, distinct mottles of light gray (10YR 7/1); weak, medium, angular blocky structure; friable; patchy clay films on ped faces and in root channels; coatings of silt and very fine sand between peds; few plinthite nodules; very strongly acid; gradual, wavy boundary.

IIB23t—27 to 35 inches, mottled light-gray (10YR 7/1), light yellowish-brown (10YR 6/4), and red (10YR 4/8) clay; weak, fine, angular blocky structure; firm; clay films on ped faces; very strongly acid; gradual, wavy boundary.

IIB24t—35 to 60 inches, mottled light-gray (10YR 7/1), yellow (10YR 7/6), and red (2.5YR 4/6) clay; weak, fine, angular blocky structure; firm; clay films on ped faces; occasional slickensides; very strongly acid.

The A1 horizon is dark gray, dark grayish brown, very dark gray, or very dark grayish brown. The A2 horizon, where present, is pale brown, very pale brown, or light yellowish brown. The A horizon is very fine sandy loam, loam, or silt loam. The upper part of the Bt horizon is yellowish-brown, pale-yellow, or brownish-yellow silt loam, loam, or clay loam. Clay in the upper 20 inches ranges from 18 to 30 percent. The lower part of the IIBt horizon is mottled with shades of red, yellow, brown, and gray or has a grayish matrix mottled with shades of brown, yellow, and red. It is silty clay, clay, or clay loam. Reaction is strongly acid or very strongly acid throughout the profile.

Falkner soils are associated with Baxterville and Susquehanna soils. They are not so well drained and not so red as Baxterville soils, and they have more silt. They have less clay in the upper part of the Bt horizon than Susquehanna soils.

Falkner soils in Lamar County have slightly less clay and more sand in the upper part of the Bt horizon than is described as the range for the series, but this difference does not alter their usefulness and behavior.

Falkner silt loam, 2 to 5 percent slopes (FaB).—This is a somewhat poorly drained soil on uplands. Small areas of Baxterville and Susquehanna soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is moderately slow above the clay and slow in the clay. Runoff is slow or medium. The available water capacity is high. The hazard of erosion is slight. The soil crusts and packs if left bare.

Most of the acreage is wooded. A small acreage is used for crops or pasture. This soil is suited to cotton, corn, soybeans, oats, and pasture plants and well suited to pine trees and adapted hardwoods.

Contour farming, grassed waterways, the return of crop residue, and adequate fertilization are needed if this soil is used for row crops. Capability unit IIIe–2; woodland group 2w8.

Freestone Series

The Freestone series consists of moderately well drained to somewhat poorly drained soils that formed in loamy material and the underlying clay. Slopes are 2 to 15 percent.

In a representative profile the surface layer is grayish-brown sandy loam about 5 inches thick, and the subsurface layer is pale-brown sandy loam about 5 inches thick. The subsoil extends to a depth of 60 inches or more. The upper 18 inches is strong-brown sandy clay loam. The next 7 inches is clay mottled with shades of gray, red, and brown. The lower part is light-gray clay mottled with reddish yellow.

Representative profile of Freestone sandy loam in a wooded area of the Freestone-McLaurin-Susquehanna association, rolling, 1½ miles west of Oak Grove, one-fourth mile northwest of blacktop road, and three-fourths mile southwest of spillway on Lake Serene; SW¼SE¼ sec. 19, T. 4 N., R. 14 W.

A1—0 to 5 inches, grayish-brown (10YR 5/2) sandy loam; weak, medium, granular structure; friable; very strongly acid; clear, smooth boundary.

A2—5 to 10 inches, pale-brown (10YR 6/3) sandy loam; weak, medium, granular structure; friable; very strongly acid; clear, smooth boundary.

B21t—10 to 28 inches, strong-brown (7.5YR 5/8) sandy clay loam; moderate, medium, angular and subangular blocky structure; firm; very strongly acid; gradual, wavy boundary.

IIB22t—28 to 35 inches, mottled light-gray (5Y 7/1), pale-brown (10YR 6/3), and yellowish-red (5YR 4/8) clay; moderate, fine, angular blocky structure; firm; very strongly acid; gradual, wavy boundary.

IIB23t—35 to 60 inches, light-gray (5Y 7/1) clay; few, fine, prominent, reddish-yellow (5YR 6/8) mottles; moderate, fine, angular blocky structure; firm when moist, plastic when wet; very strongly acid.

The A1 horizon is very dark grayish brown, dark grayish brown, grayish brown, or brown. The A2 horizon, where present, is grayish brown or pale brown. The upper part of the Bt horizon is yellowish-brown, strong-brown, or brownish-yellow loam, sandy clay loam, or clay loam mottled with shades of red, yellow, brown, or gray. Clay content in the upper 20 inches ranges from 18 to 30 percent. The lower part of the Bt horizon is gray or light-gray clay mottled with shades of red, yellow, or brown or is mottled with shades of red, yellow, brown, and gray. The depth to clay ranges from 18 to 30 inches. Reaction is medium acid to very strongly acid throughout the profile.

Freestone soils are associated with Prentiss and Susquehanna soils. They do not have the fragipan that is characteristic of Prentiss soils. They have more clay in the upper part of the B horizon than Prentiss soils, and they have lower clay layers that do not occur in Prentiss soils. They are not so clayey in the upper part of the Bt horizon as Susquehanna soils.

Freestone-McLaurin-Susquehanna association, rolling (FmC).—This association consists of somewhat poorly drained, moderately well drained, and well drained, rolling soils on rough, wooded uplands. Areas of this unit generally are larger and the composition is more variable than for most others in the county. Mapping has been controlled well enough, however, for the anticipated use of the soils. Slopes are 2 to 15 percent.

The dominant soils make up about 62 percent of the association. Freestone soils make up about 27 percent, McLaurin soils about 19 percent, and Susquehanna soils about 16 percent. The rest consists of small areas of Prentiss soils and of poorly drained soils on the narrow flood plain.

The moderately well drained or somewhat poorly drained Freestone soils are mostly on the tops and upper sides of ridges. They have the profile described as representative of the series. These soils are medium acid to very strongly acid. The available water capacity is medium. Permeability is moderately slow above the clay layer and slow in the clay layer. Runoff is medium to rapid.

The well-drained McLaurin soils are also mostly on the tops and upper sides of ridges. They have a surface layer of dark-gray sandy loam about 5 inches thick and a subsurface layer of brown sandy loam about 4 inches thick. Their subsoil, which extends to a depth of about 73 inches, is yellowish-red sandy loam. McLaurin soils are strongly acid or very strongly acid. The available water capacity is medium. Permeability is moderate or moderately rapid. Runoff is medium to rapid.

The somewhat poorly drained Susquehanna soils are mostly on mid and lower slopes. They have a surface layer of dark-gray silt loam about 4 inches thick and a clay subsoil that extends to a depth of 76 inches. The upper 9 inches of the subsoil is yellowish red, the next 16 inches is mottled light gray and yellowish red, and the lower part is light gray mottled with dark red. These soils are strongly acid or very strongly acid. The available water capacity is high. Permeability is very slow, and runoff is medium to rapid.

Almost all of this association is wooded, and only a small acreage is in pasture. It is generally too rolling for crops. This association is better suited to pine trees, but pasture plants can be grown on the gentler slopes (fig. 3).

The dominant tree naturally occurring on this association is longleaf pine. Some loblolly, slash, and shortleaf pine occurs as a result of past management. The small included areas on flood plains support slash and loblolly pine and several species of hardwoods. Areas at the heads of drainageways and along the edges of the flood plain support yellow-poplar, red and white oak, magnolia, swamp blackgum, sweetgum, and hickory. In the drainageways and small slackwater areas are southern sweetbay, sweetbay, and swamp blackgum. Woody stem species that quickly invade the understory on the flood plain are dominantly waxmyrtle, gallberry, and titi. Woody stem invaders on uplands are gallberry, waxmyrtle, post oak, red oak, and blackjack oak. Freestone soil in capability unit VIIe–1 and woodland group 2w8; McLaurin soil in capability unit VIe–1 and woodland group 2o1; Sus-

Figure 3.—Bahiagrass pasture on Freestone-McLaurin-Susquehanna association, rolling.

quehanna soil in capability unit VIIe–1 and woodland group 3c2.

Freestone, Susquehanna, and Prentiss soils, 5 to 12 percent slopes (FsD).—This mapping unit consists of somewhat poorly drained and moderately well drained soils that formed in loamy and clayey material on uplands. These soils are associated on the landscape, but in no regular pattern. Some areas are made up of only one or two of these soils, but most areas consist of all three soils.

Freestone soils make up about 24 percent of the unit, Susquehanna soils about 20 percent, Prentiss soils about 17 percent, and Benndale, Cahaba, and somewhat poorly drained and moderately well drained unclassified soils about 39 percent.

The moderately well drained or somewhat poorly drained Freestone soils are on mid and lower slopes. They have a surface layer of dark-gray loam about 3 inches thick and a subsurface layer of pale-brown loam about 8 inches thick. The subsoil extends to a depth of about 61 inches. The upper 16 inches is mottled yellowish-brown and brownish-yellow clay loam. The next 13 inches is light-clay loam mottled with dark red. The lower part is light-gray clay mottled with shades of red and brown. These soils are medium acid to very strongly acid. The available water capacity is medium. Permeability is moderately slow in the upper part of the subsoil and slow in the lower part. Runoff is medium.

The somewhat poorly drained Susquehanna soils also are on mid and lower slopes. They have a surface layer of grayish-brown silt loam about 2 inches thick and a subsurface layer of pale-yellow silt loam about 10 inches thick. Their subsoil extends to a depth of about 68 inches. The upper 10 inches is yellowish-red clay mottled with yellowish brown and white. The rest is light-gray clay mottled with red and reddish yellow. These soils are strongly acid or very strongly acid. The available water capacity is high. Permeability is very slow, and runoff is rapid.

The moderately well drained Prentiss soils are on the tops and upper sides of ridges. They have a surface layer of very dark gray fine sandy loam about 8 inches thick and a subsurface layer of light yellowish-brown fine sandy loam about 7 inches thick. Their subsoil extends to a depth of about 60 inches. The upper 17 inches is strong-brown loam that has yellowish-red mottles in the lower part. Below this is a sandy loam fragipan mottled with shades of brown, gray, and red. These soils are strongly acid or very strongly acid. The available water capacity is medium. Permeability is moderate above the fragipan and moderately slow in the fragipan. Runoff is medium.

Most areas of this mapping unit are wooded. A small acreage is used for pasture. Because slopes are strong and the erosion hazard is moderate, good ground cover is needed. The soils are suited to pasture plants, pines, and adapted hardwood trees. Most of the soils are well suited to loblolly and slash pines. All species of pine occur naturally throughout. The growth rate varies according to the topography, the soil, and the species. The rate of brush invasion is high. Site

preparation for natural seeding does not last more than 1 year. Principal invaders are waxmyrtle, gallberry, and hardwood brush.

Soils at heads of drainageways and along the drainageways grow excellent yellow-poplar. Small drainageways and lower toe slopes produce fair quality white oak, water oak, red oak, blackgum, sweetgum, and hickory. Logging should be avoided in winter and early in spring because most of these soils are wet. Freestone soil in capability unit VIe–2 and woodland group 2w8; Susquehanna soil in capability unit VIe–2 and woodland group 3c2; Prentiss soil in capability unit IVe–1 and woodland group 2o7.

Lakeland Series

The Lakeland series consists of excessively drained soils that formed in sandy material.

In a representative profile the surface layer is grayish-brown sand about 7 inches thick. The underlying material extends to a depth of 83 inches or more and is sand throughout. The upper 15 inches is yellowish brown, the middle 27 inches is light yellowish brown, and the lower part is very pale brown.

Representative profile of Lakeland sand, 2 to 12 percent slopes, in a wooded area 6½ miles northwest of Purvis, 1 mile west of lower Oloh Road, one-half mile south of gravel road, and 15 feet west of woods road NE¼SE¼ sec. 33, T. 3 N., R. 15 W.

A1—0 to 7 inches, grayish-brown (10YR 5/2) sand; weak, medium, granular structure; loose; very strongly acid; clear boundary.

C1—7 to 22 inches, yellowish-brown (10YR 5/4) sand; structureless; single grained; loose sand grains coated with clay or silt; very strongly acid; gradual boundary.

C2—22 to 49 inches, light yellowish-brown (10YR 6/4) sand; structureless; single grained; loose; few pockets of uncoated sand grains; very strongly acid; gradual boundary.

C3—49 to 83 inches, very pale brown (10YR 8/4) sand; structureless; single grained; loose; very strongly acid.

The A1 horizon is gray, grayish brown, or very dark grayish brown. The A horizon ranges from 2 to 8 inches in thickness. The upper part of the C horizon is shades of gray, brown, and yellow and in places has few to common grayish or brownish mottles. The lower part of the C horizon in places has pinkish or reddish colors in addition to those of the upper part of the C horizon. Reaction is strongly acid or very strongly acid throughout the profile.

Lakeland soils are associated with McLaurin and Lucy soils. They do not have the Bt horizon that is characteristic of McLaurin and Lucy soils, and they do not have a loamy subsoil.

Lakeland sand, 2 to 12 percent slopes (LaD).—This is an excessively drained sandy soil on uplands. Small areas of soils that have a yellowish-red sandy loam subsoil at a depth of 20 to 80 inches and soils that have slopes of more than 12 percent are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is rapid, and runoff is slow. The available water capacity is low.

Most of the acreage is wooded. The available water capacity is insufficient for most cultivated crops and pasture plants; however, such deep-rooted plants as Coastal bermudagrass and bahiagrass are fairly well suited. This soil is suited to pine trees, but establishment of the stand may be difficult. Capability unit VIs–1; woodland group 4s3.

Latonia Series

The Latonia series consists of well-drained soils that formed in loamy material on stream terraces.

In a representative profile the surface layer is grayish-brown fine sandy loam about 4 inches thick. The subsoil is sandy loam about 28 inches thick. The upper part is yellowish brown, and the lower part is brownish yellow. The underlying material is white sand mottled with shades of brown that extends to a depth of about 74 inches.

Representative profile of Latonia fine sandy loam 3.75 miles north of Purvis, on U.S. Highway 11, 775 feet east of highway, 30 feet north of woods road south of Black Creek; NE¼SW¼ sec. 26, T. 3 N., R. 14 W.

A1—0 to 4 inches, grayish-brown (10YR 5/2) fine sandy loam; weak, fine and medium, granular structure; very friable; common fine and medium roots; very strongly acid; clear, smooth boundary.

B1—4 to 8 inches, yellowish-brown (10YR 5/4) fine sandy loam; weak, fine, subangular blocky structure; friable; few fine and medium roots; few worm casts; few pockets of uncoated sand grains; very strongly acid; clear, smooth boundary.

B2t—8 to 23 inches, yellowish-brown (10YR 5/6) sandy loam; weak, medium, subangular blocky structure; friable; few fine roots; sand grains coated and bridged with clay; few pockets of uncoated sand grains; very strongly acid; gradual, smooth boundary.

B3—23 to 32 inches, brownish-yellow (10YR 6/6) sandy loam; weak, coarse, subangular blocky structure; very friable; many sand grains, some coated and bridged with clay; few pockets of uncoated sand grains; very strongly acid; gradual, smooth boundary.

IIC1—32 to 67 inches, white (10YR 8/2) sand; common, medium, distinct, strong-brown (7.5YR 5/6) mottles and many, medium, distinct, light yellowish-brown (10YR 6/4) mottles; single grained; loose; very strongly acid; clear, smooth boundary.

IIC2—67 to 74 inches, white (10YR 8/2) sand; few, medium, distinct, dark-brown (10YR 4/3) mottles; single grained; loose; very strongly acid.

The A1 horizon is gray, grayish brown, or very dark grayish brown. The B1 horizon is yellowish-brown, dark yellowish-brown, or dark-brown fine sandy loam and sandy loam. The Bt and B3 horizons are yellowish-brown, strong-brown, brownish-yellow, dark yellowish-brown, or brownish-yellow sandy loam or loam. The IIC horizon is white, yellow, very pale brown, or brownish-yellow sand or loamy sand. Reaction is strongly acid or very strongly acid throughout the profile.

Latonia soils are associated with Basin and Mashulaville soils. They are better drained and are less gray in the B horizon than those soils. They do not have the plinthite that is typical of Basin soils, and they do not have the fragipan that is characteristic of Mashulaville soils.

Latonia fine sandy loam (Lt).—This is a well-drained soil that generally is on terraces or larger streams. Slopes are 0 to 2 percent. Small areas of Basin and Mashulaville soils that have a brownish loamy subsoil more than 60 inches thick are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is moderately rapid in the subsoil and rapid in the sandy layer. Runoff is slow. The available water capacity is medium.

Most of the acreage is wooded. A small acreage is used for crops or pasture. This soil is well suited to cotton, corn, soybeans, oats, pasture plants, and pine trees.

Proper fertilization and the return of crop residue are needed if row crops are grown year after year. Capability unit IIs–1; woodland group 2o1.

Lucy Series

The Lucy series consists of well-drained soils that formed in loamy material. Slopes are 2 to 17 percent.

In a representative profile the surface layer is dark-gray loamy sand about 3 inches thick, and the subsurface layer is pale-yellow loamy sand about 19 inches thick. Reddish-yellow sandy loam is between depths of 22 and 28 inches. The subsoil is red sandy loam that extends to a depth of 73 inches.

In Lamar County Lucy soils are mapped only with McLaurin soils.

Representative profile of Lucy loamy sand in a wooded area of the McLaurin-Lucy association, rolling, about 500 feet north of pipeline, about 9 miles southwest on pipeline from county road, and about 5 miles west of Purvis; SE¼SW¼ sec. 15, T. 2 N., R. 15 W.

A1—0 to 3 inches, dark-gray (10YR 4/1) loamy sand; weak, fine, granular structure; very friable; very strongly acid; abrupt, smooth boundary.

A2—3 to 22 inches, pale-yellow (2.5Y 7/4) loamy sand; weak, fine, granular structure; very friable; very strongly acid; clear, smooth boundary.

Bt&A3—22 to 28 inches, reddish-yellow (5YR 6/8) sandy loam; weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; common, medium, prominent, very pale brown (10 YR 7/3) pockets of uncoated sand; very strongly acid; gradual, wavy boundary.

B21t—28 to 51 inches, red (2.5YR 4/8) sandy loam; weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; few patchy clay films on ped faces; very strongly acid; gradual, wavy boundary.

B22t—51 to 73 inches, red (2.5YR 5/8) sandy loam; few, medium, prominent, reddish-yellow (7.5YR 6/6) mottles; weak, coarse, subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid.

The A1 horizon is dark gray, grayish brown, or brown. The A2 horizon is pale yellow, very pale brown, pale brown, light yellowish brown, or light brown. The A horizon ranges from 22 to 40 inches in thickness. The Bt horizon is yellowish-red, reddish-yellow, or red sandy loam or sandy clay loam that extends to a depth of about 70 inches or more. Reaction is strongly acid or very strongly acid throughout the profile.

Lucy soils are associated with Cahaba, Lakeland, and McLaurin soils. They differ from Cahaba and McLaurin soils in having an A horizon of loamy sand at least 20 inches thick. They have a thicker solum than Cahaba soils. They have a Bt horizon, which does not occur in Lakeland soils.

Mashulaville Series

The Mashulaville series consists of poorly drained soils that formed in loamy material. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark-gray fine sandy loam about 4 inches thick. The subsurface layer is 4 inches of gray fine sandy loam and 8 inches of light-gray fine sandy loam mottled with yellowish brown. It is underlain by a fragipan layer that extends to a depth of about 61 inches. It is light-gray loam mottled with yellowish brown in the upper part and sandy loam and loam mottled with shades of gray, yellow, and brown in the lower part.

Representative profile of Mashulaville fine sandy loam in a wooded area 3 miles east of Purvis, one-fourth mile south of Beaver Lake on gravel road and 100 feet east of road; SW¼NE¼ sec. 13, T. 2 N., R. 14 W.

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

A21g—4 to 8 inches, gray (10YR 6/1) fine sandy loam; many, coarse, distinct, yellowish-brown (10YR 5/8) mottles; weak, medium, angular blocky structure; firm, slightly compact; very strongly acid; clear, smooth boundary.

A22g—8 to 16 inches, light-gray (10YR 7/1) fine sandy loam; common, coarse, distinct, yellowish-brown (10YR 5/6) mottles; weak, coarse, angular blocky structure; firm, slightly compact; few voids; uncoated silt and very fine sand between peds; very strongly acid; gradual, wavy boundary.

Bx1—16 to 34 inches, light-gray (10YR 7/1) loam; common, medium, prominent, yellowish-brown (10YR 5/6) mottles; weak, coarse, subangular blocky structure; firm, compact and brittle; sand grains coated and bridged with clay; clay films on few ped faces; cracks filled with uncoated sand grains; common voids and vesicles; very strongly acid; gradual, wavy boundary.

Bx2—34 to 48 inches, mottled gray (10YR 6/1), brownish-yellow (10YR 6/6), and strong-brown (7.5YR 5/6) sandy loam; weak, coarse, angular blocky structure; firm, compact and brittle; common voids and vesicles; pockets of white (10YR 8/1) sand; very strongly acid; clear, smooth boundary.

Bx3—48 to 61 inches, mottled light-gray (10YR 7/1) and strong-brown (7.5YR 5/6) loam; weak, coarse, angular blocky structure; firm, brittle and compact; very strongly acid.

The A1 horizon is grayish brown, dark gray, very dark gray, or black. The A2 horizon is gray or light-gray silt loam, loam, or fine sandy loam. The Bx horizon is gray or light-gray sandy loam or loam mottled with shades of yellow and brown or is mottled in shades of gray, yellow, and brown. Reaction is strongly acid or very strongly acid throughout the profile.

Mashulaville soils are associated with Basin, Latonia, and Trebloc soils. They have a grayer subsoil than Basin and Latonia soils. They have a fragipan, which does not occur in Trebloc, Latonia, and Basin soils. They are coarser textured than Trebloc soils.

Mashulaville fine sandy loam (Ma).—This is a poorly drained soil on area adjacent to streams. Slopes are 0 to 2 percent. Small areas of Basin and Trebloc soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability and runoff are slow. The available water capacity is medium. The water table fluctuates; during wet periods it is near the surface.

Most of the acreage is wooded. A small acreage is used for pasture or row crops. This soil is suited to soybeans, pasture plants, and pine trees.

V- or W-shaped ditches or other surface drainage is needed if this soil is used for pasture or row crops. Capability unit IVw–1; woodland group 3w9.

McLaurin Series

The McLaurin series consists of well-drained soils that formed in loamy material. Slopes are 0 to 17 percent.

In a representative profile the surface layer is dark grayish-brown fine sandy loam about 4 inches thick, and the subsurface layer is yellowish-brown fine sandy loam about 5 inches thick. The subsoil extends to a depth of about 67 inches. In sequence from the top, it is 17 inches of yellowish-red sandy loam and loam, 11 inches of yellowish-red sandy loam that has light yellowish-brown and dark-brown mottles surrounding pockets of compact and brittle sand, and 30 inches of red sandy loam.

Representative profile of McLaurin fine sandy loam,

2 to 5 percent slopes, in a large wooded area 3¼ miles south of Greenville community, one-eighth of a mile north on woods road, 30 feet east of road; SE¼SE¼ sec. 15, T. 3 N., R. 16 W.

A1—0 to 4 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, fine, granular structure; friable; very strongly acid; clear, smooth boundary.

A2—4 to 9 inches, yellowish-brown (10YR 5/4) fine sandy loam; weak, fine, granular structure; friable; very strongly acid; clear, smooth boundary.

B1—9 to 13 inches, yellowish-red (5YR 5/8) sandy loam; weak, medium, subangular blocky structure; friable; few fine roots; few sand grains coated and bridged with clay; few uncoated sand grains; very strongly acid; clear, smooth boundary.

B21t—13 to 26 inches, yellowish-red (5YR 4/8) loam; weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; few patchy clay films; very strongly acid; clear, wavy boundary.

B22t&A'2—26 to 37 inches, yellowish-red (5YR 5/6) sandy loam; common, medium, prominent, light yellowish-brown (10YR 6/4) mottles and common, coarse, distinct, dark-brown (7.5YR 4/4) mottles surrounding common medium pockets of uncoated sand grains; weak, medium, subangular blocky structure; friable, mottled areas are compact and brittle; sand grains coated and bridged in matrix; very strongly acid; clear, wavy boundary.

B't—37 to 67 inches, red (2.5YR 4/6) sandy loam; weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

The A1 horizon is very dark grayish-brown, dark grayish-brown, dark-gray, pale-brown, or grayish-brown fine sandy loam or sandy loam that ranges from 3 to 8 inches in thickness. The A2 horizon is pale brown, brown, light yellowish brown, yellowish brown, or dark yellowish brown. The upper part of the Bt horizon is yellowish-red or red sandy loam or loam. The lower part of the Bt horizon and the A'2 horizon are yellowish-red or strong-brown loamy sand or sandy loam. The B't horizon is red or yellowish-red sandy loam, loam, or sandy clay loam. Reaction is strongly acid or very strongly acid throughout the profile.

McLaurin soils are associated with Benndale, Cahaba, Lakeland, and Lucy soils. They are redder than Benndale soils. They are coarser textured than Cahaba soils, and they have a solum more than 60 inches thick. They do not have the loamy sand A horizon, at least 20 inches thick, that is characteristic of Lucy soils. They are redder and finer textured than Lakeland soils.

McLaurin fine sandy loam, 0 to 2 percent slopes (McA).—This is a well-drained soil on uplands. The surface layer is very dark grayish-brown fine sandy loam about 4 inches thick, and the subsurface layer is pale-brown fine sandy loam about 5 inches thick. The subsoil extends to a depth of about 64 inches. The upper 22

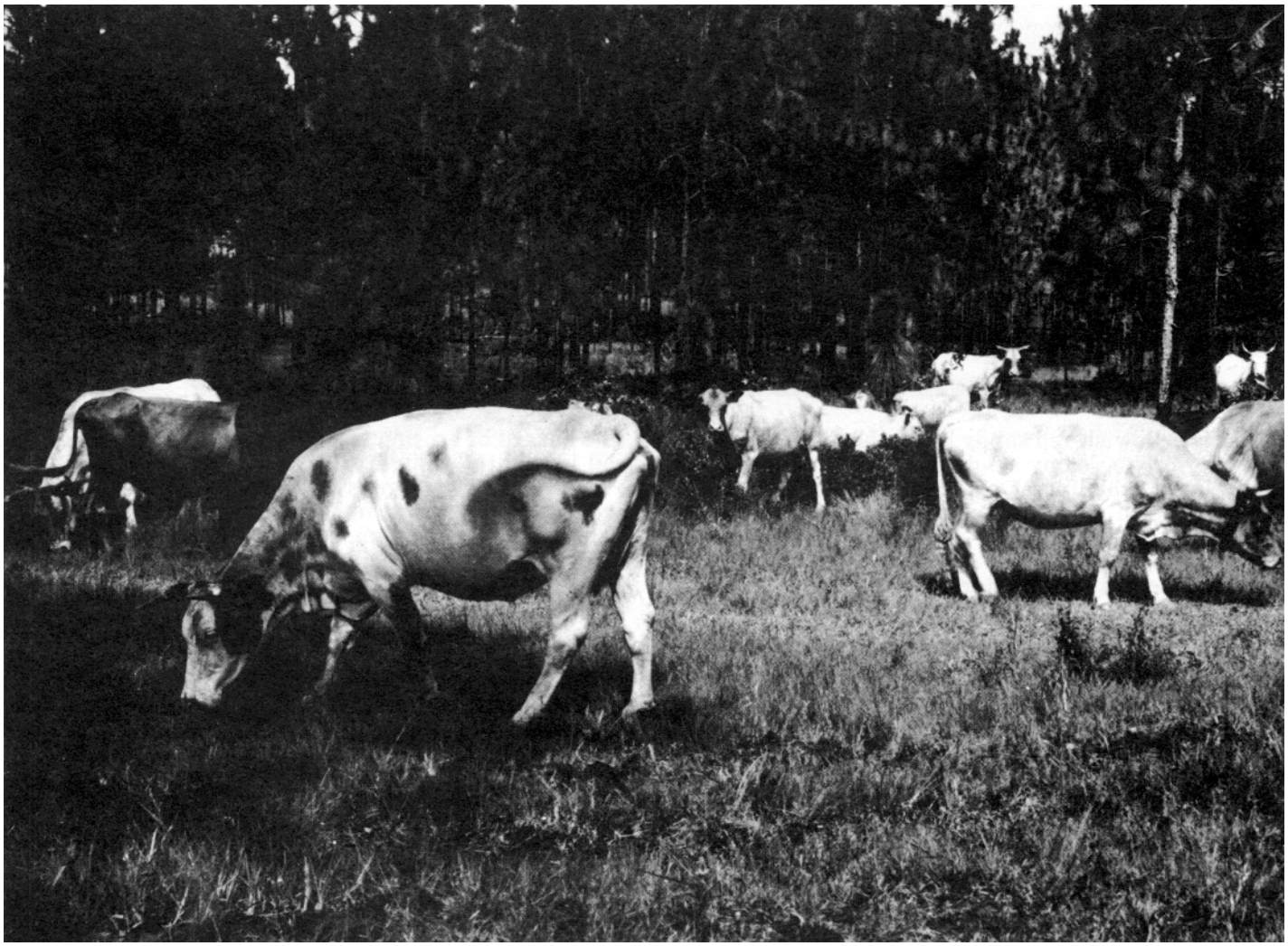

Figure 4.—**Cattle grazing in woodland on McLaurin fine sandy loam, 2 to 5 percent slopes.**

Figure 5.—Coastal bermudagrass hay on McLaurin fine sandy loam, 2 to 5 percent slopes.

inches is yellowish-red sandy loam, the middle 15 inches is strong-brown loamy sand, and the lower part is red sandy loam. Small areas of Benndale and Cahaba soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is moderate to moderately rapid, and runoff is slow. The available water capacity is medium. This soil is slightly droughty during periods of low rainfall.

Most of the acreage is wooded. A small acreage is used for row crops or pasture. This soil is well suited to cotton, corn, soybeans, oats, pasture plants, and pine trees.

Contour farming, the return of crop residue, adequate fertilization, and grassed waterways are needed if this soil is used for row crops. Capability unit IIs–1; woodland group 2o1.

McLaurin fine sandy loam, 2 to 5 percent slopes (McB).—This is a well-drained soil on uplands. It has the profile described as representative of the series. Small areas of Benndale and Cahaba soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is moderate or moderately rapid, and runoff is medium. The available water capacity is medium. The hazard of erosion is slight in cultivated areas. This soil is slightly droughty.

Most of the acreage is wooded (fig. 4). A small acreage is used for row crops or pasture (fig. 5). This soil is well suited to cotton, corn, soybeans, oats, pasture plants, and pine trees.

Contour farming, stripcropping, the return of crop residue, adequate fertilization, parallel terraces, and grassed waterways are needed if this soil is used for row crops. Capability unit IIe–1; woodland group 2o1.

McLaurin fine sandy loam, 5 to 8 percent slopes (McC).—This is a well-drained soil on uplands. The surface layer is dark grayish-brown fine sandy loam about 6 inches thick, and the subsurface layer is yellowish-brown fine sandy loam about 6 inches thick. The subsoil is yellowish-red sandy loam that extends to a depth of about 60 inches. Small areas of Cahaba and Lucy soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is moderate or moderately rapid, and runoff is medium. The available water capacity is medium. The hazard of erosion is moderate in cultivated areas. This soil is slightly droughty.

Most of the acreage is wooded. A small acreage is

used for row crops or pasture. This soil is well suited to cotton, corn, soybeans, oats, pasture plants, and pine trees.

Contour farming, stripcropping, the return of crop residue, adequate fertilization, parallel terraces, and grassed waterways are needed if this soil is used for row crops. Capability unit IIIe–1; woodland group 2o1.

McLaurin and Cahaba soils, 8 to 12 percent slopes (MhD).—This mapping units consists of well-drained soils on side slopes in the uplands. These soils are associated on the landscape, but in no regular pattern. Some areas are entirely McLaurin or Cahaba soils, but most areas consist of both.

McLaurin soils make up about 56 percent of the unit; Cahaba soils, about 30 percent; and Benndale soils and soils that have a fragipan, 14 percent.

The McLaurin soils have a surface layer of dark grayish-brown sandy loam about 5 inches thick. The subsoil extends to a depth of about 69 inches. The upper 19 inches is yellowish-red loam, and the lower part is yellowish-red sandy loam and red loam. These soils are strongly acid or very strongly acid. The available water capacity is medium. Permeability is moderate or moderately rapid, and runoff is rapid. The hazard of erosion is high in cultivated areas.

The Cahaba soils have the profile described as representative of the Cahaba series. These soils are strongly acid or very strongly acid. The available water capacity is medium. Permeability is moderate, and runoff is rapid. The hazard of erosion is high in cultivated areas.

Most areas of this mapping unit are wooded. A small acreage is used for row crops or pasture. The soils are suited to corn, soybeans, and oats and well suited to pasture plants and pine trees.

Such rotations as 3 years of close-growing crops and 1 year of row crops are recommended if these soils are used for row crops. Contour farming, stripcropping, the return of crop residue, parallel terraces, and grassed waterways are needed to control erosion.

Southern pines are well adapted on these soils. Longleaf pine is the dominant species naturally occurring on side slopes, and loblolly and slash pine are along the lower slopes. Equipment restrictions and seedling mortality are slight. Woody stem species that quickly invade the understory vary with the soils that make up this unit. The ridges support bluejack and turkey oak, and post oak and red oak on the sides of ridges, along with scattered gallberry and waxmyrtle. Several varieties of huckleberries and blueberries also occur. Capability unit IVe–2; woodland group 2o1.

McLaurin-Lucy association, rolling (MlC).—This association consists of well-drained soils on uplands. Areas range from 200 to 800 acres in size. Areas of this unit generally are larger and the composition is more variable than for most others in the county. Mapping has been controlled well enough, however, for the anticipated use of the soils. Slopes are 2 to 17 percent.

The dominant soils make up about 60 percent of the association. McLaurin soils make up about 35 percent, and Lucy soils about 25 percent. The rest consists of well-drained soils that have a subsoil of yellowish-red sandy clay loam, somewhat poorly drained and moderately well drained soils that have a clayey subsoil, and poorly drained soils that formed in alluvium.

The well-drained McLaurin soils are on the upper sides and the tops of ridges. They have a surface layer of pale-brown sandy loam about 8 inches thick. The upper part of the subsoil, to a depth of about 34 inches, is yellowish-red loam and sandy loam. The lower part is red sandy clay loam that extends to a depth of about 77 inches. These soils are strongly acid or very strongly acid. The available water capacity is medium. Permeability is moderate or moderately rapid, and runoff is medium to rapid.

The well-drained Lucy soils are on the mid and lower slopes. They have the profile described as representative of the series. These soils are strongly acid or very strongly acid. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the surface and subsurface layers and moderately rapid in the subsoil. Runoff is slow.

Most of this association is wooded. Because this unit is variable in slope and composition, it is better suited to pine trees and permanent vegetation than to other uses (fig. 6). The dominant trees are longleaf and loblolly pine. Slash pine is on the seep lines and low flats adjacent to drainageways. Hardwoods on the ridges and upper slopes are red oak, post oak, and hickory. Post oak, blackjack oak, and hickory, generally of low quality, are on the side slopes. The included poorly drained alluvial soils grow magnolia, swamp blackgum, southern sweetbay, sweetbay, yellow-poplar, oak, blackgum, and red maple. Titi, black titi, and waxmyrtle are the main understory plants.

This association can be logged throughout the year, except that the poorly drained soils that formed in alluvium are difficult to cross with logging equipment. McLaurin soil in capability unit VIe–1 and woodland group 2o1; Lucy soil in capability unit VIs–1 and woodland group 3s2.

Osier Series

The Osier series consists of very poorly drained soils that formed in sandy material. Slopes are 0 to 2 percent.

In a representative profile the surface layer is very dark grayish-brown mucky sandy loam about 3 inches thick. The underlying material extends to a depth of about 60 inches. The upper 30 inches is dark grayish-brown mucky loamy sand, the middle 18 inches is light-gray loamy sand, and the lower part is loamy sand mottled with shades of gray, brown, and yellow.

In Lamar County Osier soils are mapped only with Trebloc soils.

Representative profile of Osier mucky sandy loam in a wooded area of Trebloc and Osier soils about 75 feet west of county road, about 2.7 miles south of the Purvis-Greenville Road and about 2.6 miles east of Greenville community; NE¼NW¼ sec. 18, T. 2 N., 15 W.

A1—0 to 3 inches, very dark grayish-brown (10YR 3/2) mucky sandy loam; weak, coarse, granular structure; slightly sticky; very strongly acid; clear, smooth boundary.

C1—3 to 33 inches, dark grayish-brown (10YR 4/2) mucky loamy sand; structureless; slightly sticky; very strongly acid; gradual, wavy boundary.

C2—33 to 51 inches, light-gray (N 7/0) loamy sand; structureless; nonsticky; very strongly acid; clear, wavy boundary.

C3—51 to 60 inches, mottled light-gray (N 7/0), pale-brown (2.5Y 7/4), and brownish-yellow (10YR 6/6) loamy sand; structureless; nonsticky; very strongly acid.

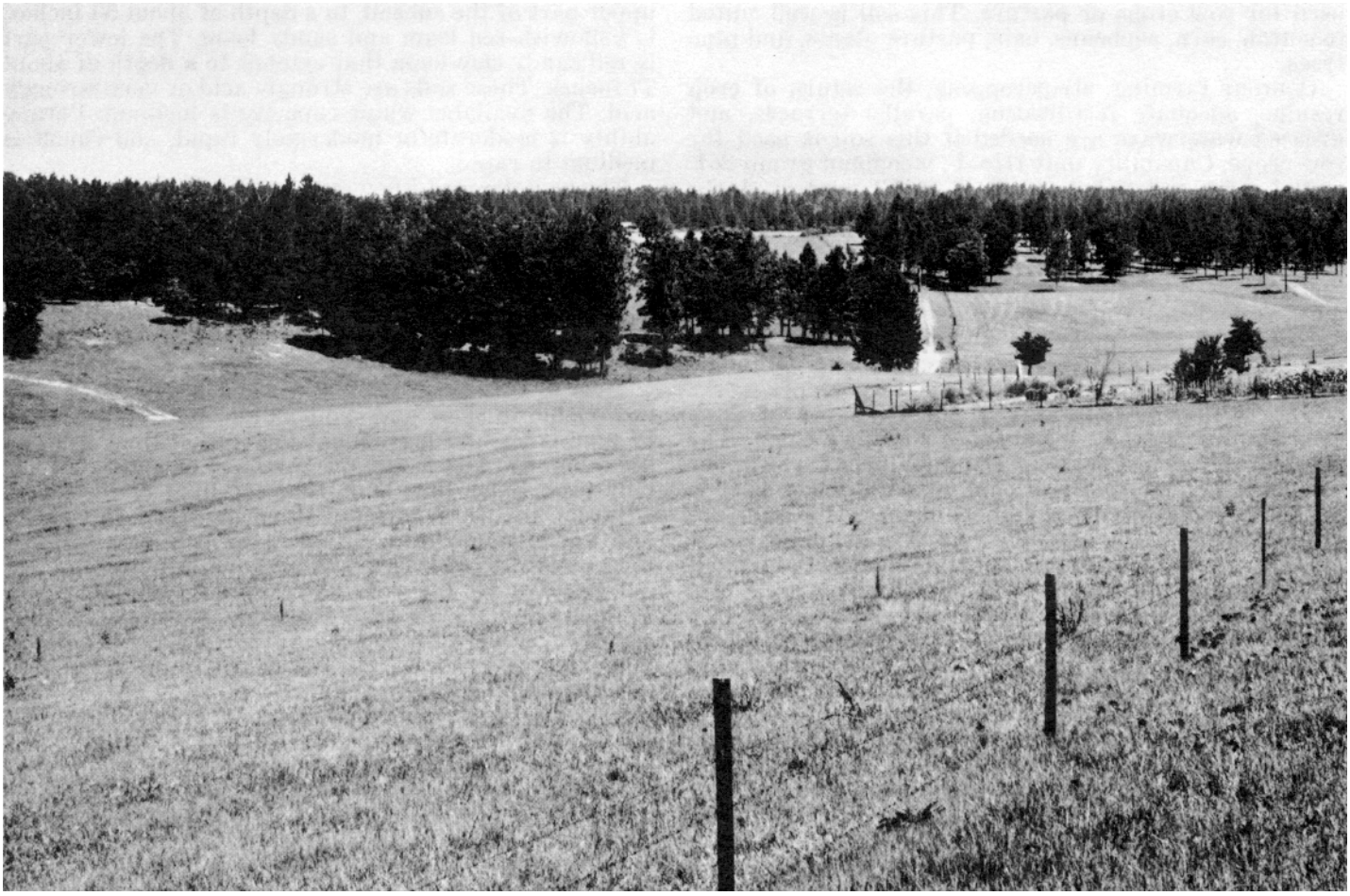

Figure 6.—**Bahiagrass pasture in foreground and longleaf pine in background. The soil is McLaurin-Lucy association, rolling.**

The A1 horizon is very dark grayish brown, black, or dark gray. The upper part of the C horizon is dark grayish-brown, light brownish-gray, or light-gray mucky loamy sand, loamy sand, or sand. The lower part of the C horizon is light gray mottled with shades of brown and yellow or is mottled with shades of brown, gray, and yellow. It is loamy sand or sand to a depth of about 60 inches. Reaction is strongly acid or very strongly acid throughout the profile.

Osier soils are associated with Trebloc soils. They are coarser textured than those soils, and they have less silt in the subsoil.

Pamlico Series

The Pamlico series consists of very poorly drained organic soils underlain by sand. Slopes are 0 to 2 percent.

In a representative profile the surface layer is very dark grayish-brown muck about 8 inches thick. The subsurface layer is very dark gray muck about 40 inches thick. It is underlain by light-gray sand that extends to a depth of about 60 inches.

In Lamar County Pamlico soils are mapped only in an undifferentiated group with Dorovan soils.

Representative profile of Pamlico muck in a wooded area of Dorovan and Pamlico mucks 4 miles west of Purvis on Greenville Road, 100 feet north of bridge across Boggy Hollow Creek, east of main stream channel; SE¼SE¼ sec. 11, T. 2 N., R. 15 W.

Oe1—0 to 8 inches, very dark grayish-brown (10YR 3/2) muck; partly decomposed leaves, twigs, and roots; many tree roots; very strongly acid; gradual boundary.

Oa1—8 to 48 inches, very dark gray (10YR 3/1) muck; few tree roots; few sand grains; very strongly acid; abrupt, smooth boundary.

IICg—48 to 60 inches, light-gray (10YR 7/1) sand; single grained; nonsticky; very strongly acid.

The Oe1 horizon is very dark gray or very dark grayish brown and is 40 to 60 percent unrubbed fibers. Live tree roots are common to many. The Oa1 horizon is black or very dark gray muck. Few to common fragments of woody material and a few sunken logs are in places. The IICg horizon is light-gray, light brownish-gray, dark-brown, or very dark grayish-brown sand or loamy sand. Depth to the IICg horizon ranges from 20 to 50 inches. Reaction is strongly acid or very strongly acid throughout the profile.

Pamlico soils are associated with Dorovan soils. They have a sandy horizon within a depth of 60 inches, which does not occur in Dorovan soils.

Prentiss Series

The Prentiss series consists of moderately well drained soils that have a fragipan. These soils formed in loamy material. Slopes are 0 to 12 percent.

In a representative profile the surface layer is very dark grayish-brown fine sandy loam about 4 inches thick. The subsoil extends to a depth of about 65 inches. The upper 23 inches is yellowish-brown loam, and the lower part is a loam fragipan mottled with shades of brown and gray.

Representative profile of Prentiss fine sandy loam, 2

Figure 7.—**Hurricane damage to timber on Prentiss fine sandy loam, 0 to 2 percent slopes. The fragipan in foreground prevented tap roots from developing for sufficient anchorage. Trees on McLaurin fine sandy loam, 2 to 5 percent slopes, in background received less damage from windthrow.**

to 5 percent slopes, in a wooded area 4 miles west of Hardy Street Interchange on Interstate 59, 0.3 mile south of Lake Serene Office on U.S. Highway 98, 30 feet east of blacktop road; NE¼NW¼ sec. 16, T. 4 N., R. 14 W.

A1—0 to 4 inches, very dark grayish-brown (10YR 3/2) fine sandy loam; weak, medium, granular structure; friable; common fine roots; very strongly acid; clear, smooth boundary.

B1—4 to 7 inches, yellowish-brown (10YR 5/4) loam; weak, medium, subangular blocky structure; friable; few medium and coarse roots; very strongly acid; clear, wavy boundary.

B21—7 to 17 inches, yellowish-brown (10YR 5/6) loam; weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; few medium and coarse roots; few fine and medium pebbles; very strongly acid; clear, wavy boundary.

B22—17 to 27 inches, yellowish-brown (10YR 5/6) loam; medium, distinct, strong-brown mottles; weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; pockets of uncoated sand grains; very strongly acid; clear, wavy boundary.

Bx1—27 to 33 inches, mottled strong-brown (7.5YR 5/6), pale-brown (10YR 6/3), and gray (10YR 6/1) loam; weak, coarse, angular blocky structure; firm, compact and brittle; many voids and vesicles; gray part is less compacted and is coarser textured than brownish part; very strongly acid; clear, wavy boundary.

Bx2—33 to 65 inches, mottled strong-brown (7.5YR 5/6), yellowish-brown (10YR 5/4), and gray (10YR 6/1) loam; weak, coarse, prismatic structure parting to weak, coarse, angular blocky; firm, brownish material is compact and brittle; many voids and vesicles, polygonal cracking, with clay films on vertical faces of cracks; gray material in cracks is fine textured and friable and has a few uncoated sand grains; strong-brown material adjacent to cracks and yellowish-brown material inside the polygons; few fine and medium pebbles; very strongly acid.

The A1 horizon is very dark grayish brown, dark grayish brown, grayish brown, very dark gray, or dark brown. The A2 horizon, where present, is grayish brown or light yellowish brown. The A horizon is silt loam, fine sandy loam, or loam. The B horizon is yellowish-brown or strong-brown loam, sandy loam, or silt loam. In places a few yellowish-red mottles occur in the lower part. The Bx horizon is mottled with shades of gray, brown, yellow, or red or has a brownish matrix mottled with shades of gray, yellow, or red. It is sandy loam, loam, or sandy clay loam. Depth to the fragipan ranges from 22 to 32 inches. Reaction is strongly acid or very strongly acid throughout the profile.

Prentiss soils are associated with Baxterville, Benndale, and Freestone soils. They differ from Baxterville, Benndale, and Freestone soils in having a fragipan. They have less

Figure 8.—**Bahiagrass hay on Prentiss fine sandy loam, 2 to 5 percent slopes, on ridgetops and Prentiss fine sandy loam, 5 to 8 percent slopes, on sides of ridges.**

clay in the upper part of the B horizon than Baxterville soils, and they do not have a horizon that is more than 5 percent plinthite. Prentiss soils differ from Benndale soils in not having a Bt horizon in the upper part of the B horizon. They do not have the clay layer in the lower part of the B horizon that is characteristic of Freestone soils.

Prentiss fine sandy loam, 0 to 2 percent slopes (PnA).—This is a moderately well drained soil that has a fragipan. The surface layer is dark grayish-brown fine sandy loam about 3 inches thick, and the subsurface layer is grayish-brown fine sandy loam about 2 inches thick. In sequence from the top, the subsoil is 11 inches of light yellowish-brown loam that has a few yellowish-brown mottles; 12 inches of loam mottled with shades of brown, gray, and red; and 26 inches of a fragipan of loam mottled with shades of brown, yellow, and gray. Small areas of Baxterville and Benndale soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Runoff is slow. The available water capacity is medium.

Most of the acreage is wooded, and a small acreage is used for crops or pasture. This soil is well suited to such crops as cotton, corn, soybeans, oats, and pasture plants and to adapted hardwood and pine trees (fig. 7).

Row crops can be grown year after year on this soil if such management practices as adequate drainage, proper fertilization, and the return of crop residue are used. Capability unit IIw–1; woodland group 2o7.

Prentiss fine sandy loam, 2 to 5 percent slopes (PnB).—This is a moderately well drained soil that has a fragipan. This soil has the profile described as representative of the series. Small areas of Baxterville and Benndale soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Runoff is medium. The available water capacity is medium. The hazard of erosion is slight.

Most of the acreage is wooded. About 40 percent is used for crops and pasture. This soil is well suited to cotton, corn, soybeans, oats, and pasture plants (fig. 8) and to pine and hardwood trees.

Row crops can be grown year after year on this soil if such management practices as contour farming, the use of parallel terraces and grassed waterways, proper fertilization, and the return of crop residue are used. Capability unit IIe–2; woodland group 2o7.

Prentiss fine sandy loam, 5 to 8 percent slopes (PnC).—This is a moderately well drained soil that has a fragipan. The surface layer is dark-gray fine sandy loam about 5 inches thick, and the subsurface layer is grayish-brown fine sandy loam about 3 inches thick. The subsoil is yellowish-brown fine sandy loam in the upper part and strong-brown or yellowish-brown loam in the lower part. A fragipan is at a depth of about 24 inches. It is loam mottled with shades of red, yellow, gray, and brown and extends to a depth of about 60 inches or more. Small areas of Baxterville and Freestone soils and some small areas of eroded soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is moderate above the fragipan and moderately slow in the fragipan. Runoff is medium. The available water capacity is medium. The hazard of erosion is medium in cultivated areas.

Most of the acreage is wooded. A small acreage is used for crops and pasture. This soil is suited to cotton, corn, soybeans, oats, and pasture plants and to pine and adapted hardwood trees.

A cropping system of 1 year of row crops followed by 2 years of grasses and legumes; the use of parallel terraces, contour farming, and grassed waterways; and the return of crop residues are needed to control erosion. Capability unit IIIe–3; woodland group 2o7.

Sandy Alluvial Land

Sandy alluvial land (Sa) consists of deep, recent sandy deposits on flood plains of streams. Most areas are excessively drained. Slopes are 0 to 2 percent. This land is excessively drained near the stream channel and poorly drained to moderately well drained near stream terraces or hills. Old stream channels are common. Areas of soils that formed in loamy material are included in mapping because they are too small to be mapped separately.

Sandy alluvial land is frequently flooded and is unsuitable for crops. It is suited to pine and hardwood trees. Some areas possibly can be used for pasture.

Reaction is medium acid to very strongly acid. The available water capacity is low or medium. Permeability is moderate to very rapid, and runoff is slow.

Woodland growth is too variable to rate. Several kinds of pines and hardwoods grow, including loblolly, slash, and spruce pine. The average height attained by the dominant trees in a stand ranges from low to high, depending on position on the landscape and frequency of flooding. Trees in drainageways and depressions are water oak, magnolia, swamp blackgum, sweetgum, red oak, and white oak. The understory develops rapidly and consists of many species of shrubs.

The hazard of erosion is slight. Equipment restrictions are moderate to severe, and seedling mortality is moderate to severe. Logging on these deep sands is preferably done during wet periods, but not during floods. Capability unit Vw–1; not assigned to a woodland group.

Susquehanna Series

The Susquehanna series consists of somewhat poorly drained soils that formed in clayey material. Slopes are 2 to 15 percent.

In a representative profile the surface layer is grayish-brown silt loam about 2 inches thick, and the subsurface layer is pale-brown silt loam about 7 inches thick. The subsoil extends to a depth of about 64 inches. The upper 22 inches is clay mottled with shades of brown, gray, and red. The lower part is light-gray clay mottled with yellowish brown, reddish brown, and black.

Representative profile of Susquehanna silt loam, 2 to 5 percent slopes, in a wooded area 4 miles southwest of Baxterville, south of oilfield, 1½ miles south of Middle Fork Creek, one-fourth mile east of gravel road; SW¼NE¼ sec. 20, T. 1 N., R. 16 W.

A1—0 to 2 inches, grayish-brown (10YR 5/2) silt loam; weak, medium, granular structure; friable; very strongly acid; abrupt, smooth boundary.

A2—2 to 9 inches, pale-brown (10YR 6/6) silt loam; common, medium, distinct yellowish-brown (10YR 5/4) mottles and few, fine, distinct, white mottles; weak, medium, subangular blocky structure; friable; very strongly acid; clear, smooth boundary.

B21t—9 to 22 inches, mottled light brownish-gray (2.5Y 6/2), red (10R 4/6), and strong-brown (7.5YR 5/6) clay; moderate, fine, angular blocky structure; very firm and plastic; patchy clay films; very strongly acid; gradual, wavy boundary.

B22t—22 to 31 inches, mottled light-gray (2.5Y 7/2), yellowish-brown (10YR 5/6), and red (2.5YR 4/6) clay; moderate, fine, angular blocky structure; very firm and plastic; patchy clay films, occasional slickensides that do not intersect; very strongly acid; gradual, wavy boundary.

B23t—31 to 64 inches, light-gray (5Y 7/2) clay; many, coarse, prominent, yellowish-brown (10YR 5/8) and reddish-brown (5YR 4/3) mottles and few, medium, prominent, black mottles; moderate, fine, angular blocky structure; very firm and plastic; occasional slickensides that do not intersect; very strongly acid.

The A1 horizon is very dark gray, dark gray, grayish brown, or gray. The A2 horizon, where present, is pale brown, pale yellow, or yellowish brown. The upper part of the Bt horizon is yellowish-red clay; is yellowish red or reddish brown mottled with shades of yellow, red, or brown; or is mottled with shades of brown, gray, and red to a depth of about 28 inches. The lower part of the Bt horizon is light-gray clay mottled with shades of red, yellow, or brown or is mottled with shades of gray, red, yellow, and brown. Reaction is strongly acid or very strongly acid throughout the profile.

Susquehanna soils are associated with Falkner and Freestone soils. They do not have the loamy textured upper part of the Bt horizon that is characteristic of Falkner and Freestone soils.

Susquehanna silt loam, 2 to 5 percent slopes (SuB).—This is a somewhat poorly drained soil on uplands. It has the profile described as representative of the series. Small areas of Falkner and Freestone soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is very slow, and runoff is medium. The available water capacity is high. The hazard of erosion is moderate in cultivated areas.

Most of the acreage is wooded. A small acreage is used for pasture or row crops. This soil is suited to pasture plants and pine trees.

Stripcropping, the return of crop residue, and grassed waterways are needed if this soil is cultivated. Capability unit IVe–3; woodland group 3c2.

Susquehanna silt loam, 5 to 12 percent slopes (SuC).—This is a somewhat poorly drained soil on uplands. The surface layer is very dark gray fine silt loam about 6 inches thick. The subsoil extends to a depth of about 60 inches. The upper 6 inches is reddish-brown clay mottled with gray, yellowish brown, and dark red, and

the lower part is clay mottled with shades of red, yellow, gray, and brown. Small areas of Falkner and Freestone soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is very slow, and runoff is rapid. The available water capacity is high. The hazard of erosion is severe unless the vegetative cover is adequate.

Most of the acreage is wooded. A small acreage is used for pasture. This soil is suited to pasture plants and pine trees. Capability unit VI–2; woodland group 3c2.

Trebloc Series

The Trebloc series consists of poorly drained soils that formed in loamy material high in content of silt. Slopes are 0 to 2 percent.

In a representative profile the surface layer is very dark gray silt loam about 2 inches thick, and the subsurface layer is silt loam about 3 inches thick that is mottled with shades of gray and brown. The subsoil extends to a depth of about 65 inches. In sequence from the top, it is 7 inches of gray silt loam mottled with shades of brown, 11 inches of gray silty clay loam mottled with shades of brown, 12 inches of gray silty clay mottled with shades of brown and yellow, and 30 inches of light-gray silty clay loam mottled with shades of yellow and brown.

Representative profile of Trebloc silt loam in a wooded area 0.25 mile southwest of Black Creek Bridge on State Highway 589; SE¼NW¼ sec. 12, T. 3 N., R. 15 W.

A1—0 to 2 inches, very dark gray (10YR 3/1) silt loam; weak, fine, granular structure; friable; many fine and medium roots; few, medium, black concretions; many fine worm casts; very strongly acid; clear, smooth boundary.

A2—2 to 5 inches, mottled gray (10YR 5/1), light brownish-gray (10YR 6/2), and strong-brown (7.5YR 5/8) silt loam; weak, fine, subangular blocky structure; friable; many fine and medium roots; few, medium, black concretions; very strongly acid; clear, wavy boundary.

B21tg—5 to 12 inches, gray (10YR 5/1) silt loam; common, medium, distinct, yellowish-brown (10YR 5/6) and light yellowish-brown (2.5Y 6/4) mottles; weak, medium, subangular blocky structure; friable; few fine roots; few, medium, black concretions; few fine pores; few silt coatings and clay films on ped faces; very strongly acid; clear, wavy boundary.

B22tg—12 to 23 inches, gray (10YR 6/1) silty clay loam; few, medium, distinct, yellowish-brown (10YR 5/8) and light yellowish-brown (2.5Y 6/4) mottles; weak, medium, subangular blocky structure; friable; few fine roots; few, fine, black concretions; silt coatings and patchy clay films on ped faces; very strongly acid; clear, wavy boundary.

B23tg—23 to 35 inches, gray (10YR 6/1) silty clay; common, medium, distinct, yellowish-brown (10YR 5/8) and olive-yellow (2.5Y 6/6) mottles; moderate, medium, subangular blocky structure; firm; few fine roots; few, fine, black concretions; few silt coatings and patchy clay films on ped faces; very strongly acid; gradual, smooth boundary.

B24tg—35 to 65 inches, light-gray (2.5Y 7/2) silty clay loam; common, medium, faint, pale-yellow (2.5Y 7/4) mottles and common, medium, distinct, strong-brown (7.5YR 5/6) mottles; moderate, medium, subangular blocky structure; firm; few, fine, black concretions; few fine roots; few silt coatings and patchy clay films on ped faces; very strongly acid.

The A1 horizon is very dark gray, gray, or dark grayish brown. The A2 horizon, where present, is light gray, light brownish gray, or gray or is mottled with shades of gray and brown. The upper part of the Bt horizon is gray silt loam, loam, or silty clay loam mottled with yellowish brown and light yellowish brown. The lower part of the Bt horizon is light gray or gray silty clay loam, silty clay, or sandy clay loam mottled with pale yellow, yellowish brown, strong brown, or olive yellow. Clay content ranges from 20 to 35 percent. Reaction is very strongly acid or strongly acid throughout the profile.

Trebloc soils are associated with Basin, Mashulaville, and Osier soils. They are finer textured in the B horizon than Basin and Mashulaville soils. They are more poorly drained than Basin soils. They do not have the fragipan that is characteristic of Mashulaville soils or the sand content characteristic of Osier soils.

Trebloc silt loam (Tr).—This is a poorly drained soil in areas adjacent to streams. Slopes are 0 to 2 percent. Small areas of Basin and Mashulaville soils are included in mapping.

This soil is strongly acid or very strongly acid. Permeability is slow, and runoff is slow or very slow. The available water capacity is high. The water table fluctuates. During wet periods it is at the surface.

Most of the acreage is wooded. A small acreage is used for pasture or row crops. V- and W-shaped ditches or other surface drainage is needed if this soil is used for pasture or row crops. This soil is suited to pasture plants and well suited to pine trees. Capability unit IVw–1; woodland group 2w9.

Trebloc and Osier soils (Ts).—This mapping unit consists of poorly drained and very poorly drained soils in broad, flat areas adjacent to streams. Areas range from 20 to 1,500 acres in size and in places are dissected by a network of meandering streams. Areas of this unit generally are larger and the composition is more variable than for most others in the county. Mapping has been controlled well enough, however, for the anticipated use of the soils.

The dominant soils make up about 53 percent of the mapping unit. Trebloc soils make up about 29 percent and Osier soils, about 24 percent. The rest consists of poorly drained soils that have a fragipan, very poorly drained organic soils, and poorly drained fine sandy loam soils.

The poorly drained Trebloc soils have a surface layer of gray silt loam about 6 inches thick. The upper 28 inches of the subsoil is gray loam mottled with yellowish brown. The lower 26 inches is light-gray sandy clay loam mottled with yellowish brown. These soils are strongly acid or very strongly acid. The available water capacity is high. Permeability is slow, and runoff is slow or very slow. The water table fluctuates. During wet periods it is at or near the surface.

The very poorly drained Osier soils have the profile described as representative of the series. They are strongly acid or very strongly acid. The available water capacity is medium in the upper layers, high in the organic matter, and low in the loamy sand layer. During wet periods it is above the surface.

Almost all of this unit is wooded. A small acreage is used for pasture. Some areas can be drained and used for pasture. The soils are suited to pine and hardwood trees. Slash and loblolly pine are on areas that can be drained of surface water. Nearly level to level soils support water oak, sweetgum, swamp blackgum, white oak, and magnolia. Slightly depressed areas and drainageways have mainly southern sweetbay and swamp blackgum. Understory plants that occur throughout are titi, black titi, waxmyrtle, black alder, and miscellaneous vines and shrubs.

The average height attained by the dominant trees in a stand is variable. Most of this unit supports logging equipment during the dry season. Tree planting is not recommended for the areas in which water ponds. Trees reestablish themselves in ponded areas and drainageways by natural seeding and coppice if openings are sufficient for direct sunlight to reach the surface soil. Trebloc soil in capability unit IVw–1 and woodland group 2w9; Osier soil in capability unit Vw–1 and woodland group 3w3.

Use and Management of the Soils

This section contains information about the use and management of the soils for crops and pasture. The system of capability classification used by the Soil Conservation Service is briefly described, and a table shows estimated acre yields of the principal crops of the county. Information is also given about the woodland and wildlife of the county, about the engineering use of the soils, and about town and country planning.

Crops and Tame Pasture [2]

In general, the soils of Lamar County are low in content of nitrogen, phosphorus, potassium, calcium, and organic matter. Most of the soils used for crops are subject to erosion. Contouring, contour stripcropping, terraces, grassed waterways, and the use of crop residue are needed to control the movement of sediment.

Cover crops or grasses and legumes should be grown in rotation with clean-tilled crops where erosion is a hazard. Crop residue should be shredded and allowed to remain on the soil from harvest until planting time. This practice provides protection for the soil and supplies additional organic material. Proper use of residue reduces erosion, improves soil tilth, and lessens soil compaction and crusting.

Good growth of the common crops can be obtained by applying soil conserving measures, using recommended varieties of seed, following good tillage practices, controlling weeds and insects, and applying fertilizer and lime as needed, according to soil tests.

A system of minimum tillage can also be used effectively to control erosion and to reduce the time and labor required to produce a crop. Minimum tillage facilitates double cropping, such as growing a winter crop for grain or grazing followed by soybeans, corn, or sorghum planted directly in the stubble without prior land preparation. Cultivation should be limited only to that needed to control weeds not controlled by other methods.

The principal pasture plants are perennial grasses or legumes and a mixture of grasses and legumes, generally a summer perennial grass and a suitable winter legume. Annual crops, such as small grain and ryegrass, provide additional winter forage.

Bahiagrass, Coastal bermudagrass, and common bermudagrass are the most commonly grown summer perennials. Bahiagrass is preferred in this county. Fescue is the chief winter perennial, although ryegrass and small grain are used more extensively for winter forage.

[2] H. S. SAUCIER, conservation agronomist, Soil Conservation Service, helped prepare this section.

Arrowleaf clover, ball clover, crimson clover, and annual lespedeza are the commonly grown legumes.

Good growth of high-quality forage can be obtained if adequate amounts of fertilizer and lime are applied as needed. Other management practices are essential for the survival of stands of high-quality forage and for erosion control. Some of these practices are grazing the different plants to the proper height, rotation grazing to maintain quality forage, renovating pasture to establish or reestablish desirable plants, and controlling brush and weeds.

Capability grouping

Capability grouping shows, in a general way, the suitability of soils for most kinds of field crops. The soils are grouped according to their limitations 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 soil; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management.

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.

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

CAPABILITY CLASSES, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use.

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

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only the subclasses indicated by *w*, *s*, and *c*, 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, range, 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. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe–2 or IIIe–3. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind

of limitation, as defined in the foregoing paragraph; and the Arabic numeral specifically identifies the capability unit within each subclass.

Following is a descriptive outline of the capability classification as it applies in Lamar County. The placement of any mapping unit in the grouping can be learned by turning to the "Guide to Mapping Units" at the back of this survey or by referring to the notation at the end of the description of each mapping unit in the section "Descriptions of the Soils."

Class I. Soils that have few limitations that restrict their use. (None in Lamar County.)
Class II. Soils that have some limitations that reduce the choice of plants or require moderate conservation practices.
- Subclass IIe. Soils that have moderate limitations because they are susceptible to erosion.
  - Unit IIe–1—Gently sloping, well drained and moderately well drained loamy soils.
  - Unit IIe–2.—Gently sloping, moderately well drained loamy soils that have a fragipan.
- Subclass IIw. Soils that have moderate limitations caused by excess water.
  - Unit IIw–1.—Nearly level, moderately well drained loamy soils that have a fragipan.
- Subclass IIs. Soils that have moderate limitations caused by lack of sufficient moisture during the growing season.
  - Unit IIs–1.—Nearly level, well-drained soils that have a sandy loam subsoil.

Class III. Soils that have severe limitations that reduce the choice of plants, require special conservation practices, or both.
- Subclass IIIe. Soils that have severe limitations because they are susceptible to erosion.
  - Unit IIIe–1.—Sloping, well drained and moderately well drained loamy soils.
  - Unit IIIe–2.—Gently sloping, somewhat poorly drained silty soils underlain by clay.
  - Unit IIIe–3.–Sloping, moderately well drained loamy soils that have a fragipan.
- Subclass IIIw. Soils that have severe limitations caused by excess water.
  - Unit IIIw–1.–Nearly level, somewhat poorly drained loamy soils.

Class IV. Soils that have very severe limitations that reduce the choice of plants, require very careful management, or both.
- Subclass IVe. Soils that have very severe limitations because they are susceptible to erosion.
  - Unit IVe–1.—Rolling, moderately well drained loamy soils that have a fragipan.
  - Unit IVe–2.—Rolling, well-drained loamy soils.
  - Unit IVe–3.—Gently sloping, somewhat poorly drained clayey soils.
- Subclass IVw. Soils that have very severe limitations caused by excess water.
  - Unit IVw–1.—Nearly level, poorly drained loamy and silty soils.

Class V. Soils that have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife habitat.
- Subclass Vw. Soils that have a hazard of excess water, either ponding or flooding, that is impractical to remove.
  - Unit Vw–1.—Nearly level, poorly drained and excessively drained sandy soils and soils that flood frequently.

Class VI. Soils that have severe limitations that make them generally unsuitable for cultivation and limit their use largely to pasture, woodland grazing, woodland, or wildlife habitat.
- Subclass VIe. Soils that have severe limitations that make them generally unsuitable for cultivation because they are susceptible to erosion.
  - Unit VIe–1.—Rolling, well-drained loamy soils.
  - Unit VIe–2.—Sloping to rolling, moderately well drained and somewhat poorly drained loamy and clayey soils.
- Subclass VIs. Soils that have severe limitations, caused by lack of sufficient moisture, that make them generally unsuitable for cultivation.
  - Unit VIs–1.—Excessively drained sandy soils and well-drained loamy soils that have a thick sandy surface layer.

Class VII. Soils that have very severe limitations that make them unsuitable for cultivation and restrict their use largely to woodland grazing, woodland, and wildlife habitat.
- Subclass VIIe. Soils that have severe limitations that make them unsuitable for cultivation because they are susceptible to erosion.
  - Unit VIIe–1.—Rolling to steep, moderately well drained and somewhat poorly drained loamy and clayey soils.
- Subclass VIIw. Soils that have very severe limitations, caused by excess water, that make them unsuitable for cultivation.
  - Unit VIIw–1.–Nearly level, very poorly drained organic soils.

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

Estimated yields

Estimated yields of principal crops grown in Lamar County under a high level of management are shown in table 2. The estimates are based on yields obtained under long-term experiments, yields obtained on farms where there was participation in soil management studies, and measured yields from field trials and demonstration plots. Soils for which data from these sources were lacking were compared with similar soils. The estimates are for arable soils in nonirrigated areas. The data reflect average rainfall, temperature, and other climatic factors that influence yields.

To obtain yields similar to those shown in table 2, the following management practices are recommended:

1. Fertilizing at planting time in amounts indicated by soil tests, by past experience with cropping and fertilizing practices, and by recommendations of the Mississippi Agricultural Experiment Station for this area.
2. Using crop varieties and hybrids that produce high yields and are suited to the area.
3. Preparing the seedbed adequately.

TABLE 2.—*Estimated average yields per acre of principal crops under high level management*

[Absence of yield indicates crop is not commonly grown on the particular soil]

Soil	Cotton lint	Corn	Soybeans	Oats	Coastal bermudagrass	Tall fescue	Bahiagrass	Ryegrass
	Lb	*Bu*	*Bu*	*Bu*	*AUM* [1]	*AUM* [1]	*AUM* [1]	*AUM* [1]
Basin fine sandy loam	450	75	25	55	8.0	7.0	8.0	8.0
Baxterville fine sandy loam, 2 to 5 percent slopes	715	75	30	65	10.0	6.5	8.0	8.0
Baxterville fine sandy loam, 5 to 8 percent slopes	650	65	25	55	9.0	6.0	7.0	7.0
Benndale fine sandy loam, 2 to 5 percent slopes	715	75	30	60	10.0	7.0	8.0	8.0
Falkner silt loam, 2 to 5 percent slopes	600	60	30	50	9.0	7.0	9.0	6.0
Freestone-McLaurin-Susquehanna association, rolling					7.2	7.0	7.3	
Freestone, Susquehanna, and Prentiss soils, 5 to 12 percent slopes					7.2	7.0	7.3	
Lakeland sand, 2 to 12 percent slopes					5.0		5.0	
Latonia fine sandy loam	750	65	25	65	10.5		9.0	8.0
Mashulaville fine sandy loam			20		4.5	7.0	7.0	7.0
McLaurin fine sandy loam, 0 to 2 percent slopes	750	85	25	65	10.5		9.0	8.0
McLaurin fine sandy loam, 2 to 5 percent slopes	715	75	30	60	10.0	7.0	8.0	8.0
McLaurin fine sandy loam, 5 to 8 percent slopes	650	70	25	55	9.0	8.0	7.0	7.0
McLaurin and Cahaba soils, 8 to 12 percent slopes		50	20	40	6.5		6.0	7.5
McLaurin-Lucy association, rolling					6.5		6.0	7.5
Prentiss fine sandy loam, 0 to 2 percent slopes	750	85	30	65	8.5	7.5	8.5	8.0
Prentiss fine sandy loam, 2 to 5 percent slopes	750	75	30	60	9.0	7.0	8.5	8.0
Prentiss fine sandy loam, 5 to 8 percent slopes	650	70	25	55	8.0	6.0	7.5	7.0
Susquehanna silt loam, 2 to 5 percent slopes					8.5	8.0	5.5	
Susquehanna silt loam, 5 to 12 percent slopes					7.0	6.5	5.0	
Trebloc silt loam					6.0	6.0	6.0	
Trebloc and Osier soils					6.0	6.0	6.0	

[1] AUM, animal-unit-months, is a term used to express the carrying capacity of pasture. It is the number of animal units, or 1,000 pounds of live weight, that can be grazed on an acre of pasture for a period of 30 days.

4. Planting by suitable methods at the proper time and proper seeding rate.
5. Inoculating legumes.
6. Practicing shallow cultivation of row crops.
7. Controlling weeds, insects, and diseases.
8. Using soil conserving cropping systems similar to those discussed in the series descriptions.
9. Where needed, establishing grassed waterways, cultivating on the contour, terracing, contour stripcropping, and using diversion terraces.
10. Protecting pastures from overgrazing.

Use of the Soils as Woodland [3]

Woodland today covers 73 percent of Lamar County, or approximately 235,000 acres. This woodland is mostly made up of five major forest types. The approximate extent of each major forest type is 49 percent longleaf-slash pine forest, 16 percent loblolly-shortleaf pine, 16 percent oak-pine, 11 percent oak-hickory, and 7 percent oak-gum-cypress forest. The rest of the woodland is in small miscellaneous forest types. All five major southern pine species are well suited to the soils of the county. Their variation of appearance is caused by the various soils that make up the county (*2*).

Farmers and other private owners control 75 percent of the woodland, industry owns 23 percent, and only 2 percent is in public ownership.

A suitable secondary use for the most of the woodland is grazing. The grasses, legumes, forbs, and many of the woody plants in the understory of woodland stands can be utilized for forage. Stocking the proper number of grazing animals for the amount of forage produced prevents damage to desirable tree species.

This section contains information about the production of both wood crops and forage in woodland.

Production of wood crops

Table 3 provides quick summary information for owners and operators of woodlands. The information is based on plot studies, both published and unpublished, and on experience and observation of technicians who work with tree crops in the area.

The soils of Lamar County have been assigned to 10 woodland groups. Each group consists of soils that are about the same in suitability for wood crops, potential productivity, and management requirements. These factors depend on such soil characteristics as depth, color, drainage, degree of erosion, slope, and wetness (*4*). Each woodland group is rated for major hazards and limitations in the management of woodland (*3*).

Erosion hazard refers to the risk of erosion in properly managed stands. Length and steepness of slopes and soil texture and permeability are among the features considered. The limitation is *slight* if erosion is not a major problem; *moderate* if management is needed to control erosion during harvesting operations and in cleared areas; and *severe* if intensive management is needed to control erosion.

Equipment limitations are soil characteristics and topographic features that restrict the use of equipment in planting, tending, and harvesting trees. They are *slight* if there is little or no restriction on the type of equipment or time of year that it can be used; *moderate* if use of equipment is restricted by steep slopes or because soils are wet up to 3 months a year; and

[3] By ROBERT L. GRIGSBY, forester, Soil Conservation Service.

TABLE 3.—*Soil ratings for*

[Sandy alluvial land (Sa) is not assigned to a

Woodland group and soil series	Major hazards and limitations
Group 2o1. Moderately well drained and well drained loamy soils on uplands. Permeability is moderately slow to moderately rapid; available water capacity is medium. Baxterville: BeB, BeC Benndale: BnB Latonia: Lt McLaurin: McA, McB, McC, MhD, MIC Interpretations for Cahaba part of MhD are same as for McLaurin part. For Lucy part of MIC, see group 3s2.	Erosion hazard, equipment limitation, and seedling mortality are slight. Logging roads on some long slopes need water bars to divert runoff; understory plants invade at moderate rate; site preparation for natural seeding generally good for 2 years; periodic control of understory is desirable.
Group 2o7. Moderately well drained loamy soils on uplands and terraces. Restricted by fragipan. Permeability is moderate to moderately slow; available water capacity is medium. Prentiss: PnA, PnB, PnC.	Erosion hazard, equipment limitation, and seedling mortality are slight. Logging roads stand up well on these soils if slightly crowned to prevent accumulation of runoff; understory plants invade at a moderate to rapid rate; site preparation for natural seeding generally good for only 1 year; periodic control of understory is desirable if soil is in forest or is used for multiple purposes.
Group 2w8. Somewhat poorly drained soils of the uplands. Permeability is moderately slow to slow. Available water capacity is medium or high. Basin: Ba Falkner: FaB Freestone: FmC, FsD For McLaurin part of FmC, see group 2o1; for Susquehanna part of FmC and FsD, see group 3c2; for Prentiss part of FsD, see group 2o7.	Erosion hazard is slight, and equipment limitation and seedling mortality are moderate. Permanent logging roads need to be crowned and drained; the high water table in wet years causes damping off of seedlings; understory plants invade at a rapid rate; site preparation does not last more than 1 year for pine and multiple use; periodic control of understory is needed.
Group 2w9. Poorly drained soils adjacent to streams. Permeability is slow, and available water capacity is high. Trebloc: Tr, Ts For Osier part of Ts, see group 3w3.	Erosion hazard is slight, and equipment limitation and seedling mortality are severe except where surface drainage is adequate. Logging should be confined to dry periods; understory plants invade at a rapid rate.
Group 3s2. Well-drained soils that have a thick loamy sand surface layer and a sandy loam subsoil. Permeability is rapid or moderately rapid. Available water capacity is low to medium. Lucy Mapped only with McLaurin soils.	Erosion hazard is slight, and equipment limitation and seedling mortality are moderate. Thick sandy surface layer and slope limit equipment use in dry periods; logging roads hold up well; understory plants invade at a slow to moderate rate; site preparation for natural seeding generally good for 2 years; in tree plantings any plant competition affects survival.
Group 3w3. Very poorly drained sandy soils adjacent to streams. Permeability is rapid. Available water capacity is medium to low. Osier Mapped only with Trebloc soils.	Erosion hazard is slight, and equipment limitation and seedling mortality are severe. High water table makes this soil difficult to log; natural regeneration of pine made difficult by both wetness and severe plant competition.
Group 3w9. Poorly drained soils that are adjacent to streams and have a fragipan. Permeability is slow. Available water capacity is medium. Mashulaville: Ma	Erosion hazard is slight, and equipment limitation and seedling mortality are severe. Logging or woods roads need to be crowned and drained; logging should be confined to dry period; seedling mortality caused by wetness and damping off; bedding improves chances for survival; understory plants invade at a rapid rate.
Group 3c2. Somewhat poorly drained clayey soils of the uplands. Permeability is very slow. Available water capacity is high. Susquehanna: SuB, SuC	Erosion hazard is slight to moderate, and equipment limitation and seedling mortality are moderate. Logging roads need water bars to divert runoff; logging should be confined to dry period; understory plants invade at a rapid rate; site preparation generally good for 1 year.
Group 4s3. Excessively drained sandy soils of the uplands. Permeability is rapid. Available water capacity is low. Lakeland: LaD	Erosion hazard is slight, equipment limitation is moderate, and seedling mortality is severe. The sandy texture and the slope are the main limitations; logging is better during the wet season than in the dry season; understory plants invade at a slow rate, but competition can affect regeneration on this soil.
Group 4w9. Very poorly drained organic soils of the flood plains. Permeability is slow to very slow. Available water capacity is very high. Dorovan and Pamlico: Dp	Erosion hazard is slight, and equipment limitation is very severe. Cable or mat dragging generally needed; soils will not support logging equipment.

[1] Potential productivity attainable only on areas that have adequate surface drainage.

woodland and forage use

woodland group because it is too variable to rate]

Potential productivity		Species to prefer—		Understory used as forage	
Tree species	Estimated site index	In existing stands	For planting	Principal plants of high value	Estimated yield of air-dried forage by canopy class
					Lb/acre
Loblolly pine Longleaf pine Slash pine	86–95 66–75 86–95	Longleaf pine, loblolly pine, slash pine.	Loblolly pine and slash pine.	Pinehill bluestem, indiangrass, slender bluestem, low panicum.	Open canopy 2,500–2,800; sparse 1,500–2,600; medium 500–1,000; dense 0–500.
Loblolly pine Slash pine Longleaf pine Sweetgum	85–96 85–96 67–78 80–100	Longleaf pine, loblolly pine, slash pine, sweetgum, yellow-poplar, blackgum.	Loblolly pine and slash pine.	Pinehill bluestem, indiangrass, grassleaf goldaster, slender bluestem, longleaf uniola.	Open canopy 1,800–2,200; sparse 1,000–2,000; medium 500–1,000; dense 0–500.
Loblolly pine Slash pine Sweetgum Water oak	85–95 85–95 85–95 85–95	Loblolly pine, slash pine, sweetgum, blackgum, water tupelo.	Loblolly pine and slash pine.	Pinehill bluestem, beaked panicum, grassleaf goldaster, low panicum.	Open canopy 2,000–2,500; sparse 1,200–2,200; medium 600–1,200; dense 200–600.
Loblolly pine Slash pine Sweetgum Water oak	[1] 88–102 [1] 88–102 [1] 90–102 80–98	Loblolly pine, slash pine, spruce pine, sweetgum, blackgum, southern sweetbay, sweetbay, magnolia, water tupelo.	Loblolly pine, slash pine, sweetgum, sycamore.	Pinehill bluestem, beaked panicum, grassleaf goldaster, low panicum.	Open canopy 2,000–2,500; sparse 1,200–2,200; medium 600–1,200; dense 200–600.
Loblolly pine Slash pine Longleaf pine	79–89 79–89 64–77	Longleaf pine, loblolly pine, slash pine.	Loblolly pine, slash pine, longleaf pine.	Pinehill bluestem, slender bluestem, low panicum.	Open canopy 1,400–1,600; sparse 800–1,400; medium 400–800; dense 0–400.
Slash pine Loblolly pine Longleaf pine	72–88 72–88 62–73	Slash pine, loblolly pine, water oak, spruce pine, swamp blackgum, magnolia, southern sweetbay, sweetbay.	Loblolly pine and slash pine.	Pinehill bluestem, toothachegrass, switchgrass, low panicum.	Open canopy 2,200–3,000; sparse 1,200–2,200; medium 800–1,200; dense 400–800.
Loblolly pine Slash pine Sweetgum	72–88 72–88 70–85	Loblolly pine, slash pine, sweetgum, swamp blackgum, red oak, white oak, water tupelo.	Loblolly pine, sweetgum, Shumard oak.	Toothachegrass, switchgrass, low panicum.	Open canopy 2,200–3,000; sparse 1,200–2,200; medium 800–1,200; dense 400.
Loblolly pine Slash pine Longleaf pine	75–89 75–89 60–68	Loblolly pine, slash pine, longleaf pine.	Loblolly pine	Pinehill bluestem, indiangrass, tickclover, beaked panicum, low panicum.	Open canopy 1,800–2,200; sparse 1,000–2,000; medium 500–1,000; dense 0–500.
Loblolly pine Slash pine Longleaf pine	69–81 67–81 56–66	Loblolly pine, slash pine, longleaf pine.	Slash pine, longleaf pine.	Pinehill bluestem, slender bluestem, low panicum, pineywoods dropseed.	Open canopy 1,400–1,600; sparse 800–1,400; medium 400–800; dense 0–400.
Southern sweetbay Sweetbay Blackgum	60–70 60–70 60–70	Southern sweetbay, sweetbay, blackgum, magnolia, water tupelo.	Planting not recommended.	No potential for grazing.	No potential for grazing.

TABLE 4.—*Suitability of soils*

Soil series and map symbols	Elements of wildlife habitat		
	Grain and seed crops	Grasses and legumes	Wild herbaceous upland plants
Basin: Ba	Suited	Well suited	Well suited
Baxterville: BeB, BeC	Well suited	Well suited	Well suited
Benndale: BnB	Well suited	Well suited	Well suited
Dorovan and Pamlico: Dp Rating applies to both soils.	Not suited	Not suited	Not suited
Falkner: FaB	Suited	Well suited	Well suited
Freestone: FmC, FsD For McLaurin and Susquehanna parts of FmC, see their respective series; for Susquehanna and Prentiss parts of FsD, see their respective series.	Suited	Well suited	Well suited
Lakeland: LaD	Poorly suited	Suited	Suited
Latonia: Lt	Well suited	Well suited	Well suited
Lucy Mapped only with McLaurin soils.	Suited	Suited	Well suited
Mashulaville: Ma	Poorly suited	Poorly suited	Suited
McLaurin: McA, McB, McC, MIC For Lucy part of MIC, see Lucy series.	Well suited	Well suited	Well suited
McLaurin and Cahaba: MhD Rating applies to both soils.	Suited	Well suited	Well suited
Osier Mapped only with Trebloc soils.	Not suited	Not suited	Suited
Prentiss:			
PnA, PnB	Well suited	Well suited	Well suited
PnC	Suited	Well suited	Well suited
Sandy alluvial land: Sa. No interpretations; properties too variable.			
Susquehanna: SuB, SuC	Suited	Suited	Suited
Trebloc: Tr, Ts For Osier part of Ts, see Osier series.	Suited	Poorly suited	Suited

severe if very steep slopes make special management necessary or if the soils are wet for more than 3 months in a year.

Seedling mortality refers to the expected loss of seedlings caused by soil characteristics and topographic features, excluding losses caused by plant competition. The limitation is *slight* if no more than 25 percent of the planted or natural stock is lost; *moderate* if 25 to 50 percent is lost; and *severe* if more than 50 percent is likely to die.

Potential productivity is the amount of a wood crop that a given soil or group of soils can produce. It is expressed as the site index, which is the average height of the dominant trees in a stand at 50 years of age. Site index given for each species is based on specific data collected on one or more soils in the group.

Preferred species are the species to be favored in existing stands and the species to be favored in establishing a stand by planting, direct seeding, or natural seeding. No attempt was made to list all species that occur. Species were selected on the basis of the adaptability, growth, quality, value, and marketability of the products obtained from each.

Production of forage[4]

The amount of forage produced in a woodland area varies with the age of the trees, the density of the canopy, and the forage value of the vegetation. For the purpose of this survey, four canopy classes are recognized. An open canopy shades as much as 20 percent of the ground at midday; a sparse canopy, 21 to 35 percent; a medium canopy, 36 to 55 percent; and a dense canopy, 56 to 70 percent. The potential yields of forage, by canopy class, for each woodland group are shown in table 3.

Forage value is a rating given the vegetation in relation to its potential to furnish quality and quan-

[4] By DAVID W. SANDERS, range conservationist, Soil Conservation Service.

for wildlife habitat

Elements of wildlife habitat—Continued			Classes of wildlife		
Hardwood trees and shrubs	Wetland food and cover plants	Shallow water development	Openland	Woodland	Wetland
Suited	Suited	Suited	Well suited	Suited	Suited.
Well suited	Poorly suited	Not suited	Well suited	Well suited	Not suited.
Well suited	Not suited	Not suited	Well suited	Well suited	Not suited.
Not suited	Suited	Well suited	Not suited	Not suited	Well suited.
Suited	Poorly suited	Poorly suited	Well suited	Suited	Poorly suited.
Suited	Poorly suited	Poorly suited	Well suited	Suited	Poorly suited.
Poorly suited	Not suited	Not suited	Suited	Suited	Not suited.
Suited	Not suited	Not suited	Well suited	Suited	Not suited.
Well suited	Not suited	Not suited	Suited	Well suited	Not suited.
Suited	Well suited	Well suited	Poorly suited	Suited	Well suited.
Well suited	Not suited	Not suited	Well suited	Well suited	Not suited.
Well suited	Not suited	Not suited	Well suited	Well suited	Not suited.
Suited	Well suited	Well suited	Not suited	Suited	Well suited.
Well suited	Poorly suited	Poorly suited	Well suited	Well suited	Poorly suited.
Well suited	Poorly suited	Poorly suited	Well suited	Well suited	Poorly suited.
Suited	Poorly suited	Not suited	Suited	Suited	Not suited.
Suited	Suited	Suited	Poorly suited	Suited	Suited.

tity forage for livestock production. High-value forage is most desirable, moderate-value forage is moderately desirable, and low-value forage is least desirable. The principal forage plants listed in table 3 are those that are present when at least 70 percent of the understory is made up of high-value plants and the canopy shades 45 percent or less of the ground. As the canopy closes, these plants are replaced by shade-tolerant woody species, and forage yields become progressively lower.

Wildlife[5]

The wildlife population of any area depends upon the availability of a suitable combination of food, cover, and water. Habitats are created, improved, or maintained by establishing desirable vegetation and developing water supplies in suitable places.

[5] E. G. SULLIVAN, biologist, Soil Conservation Service, helped prepare this section.

In table 4 each of the soils in Lamar County is rated as to its suitability for the elements of wildlife habitat and also for three classes of wildlife. These ratings refer only to the suitability of the soil. They do not take into account the climate, the present use of the soil, or the distribution of wildlife and human populations. The suitability of individual sites has to be determined by onsite inspection.

A rating of *well suited* means that habitat generally is easily created, improved, or maintained; the soil has few or no limitations that affect management; and satisfactory results can be expected. *Suited* means that habitat can be created, improved, or maintained in most places; the soil has moderate limitations that affect management; and moderate intensity of management and fairly frequent attention may be required for satisfactory results. A rating of *poorly suited* indicates that habitat can be created, improved, or maintained in most places; the soil has rather severe limitations; habitat management is difficult and ex-

TABLE 5.—*Estimates of soil*

[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. carefully the instructions for referring to other series

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Classification		
			USDA texture	Unified	AASHO
		Inches			
Basin: Ba	Within 10 inches.	0–16	Fine sandy loam	SM, ML	A–4
		16–61	Fine sandy loam	SM, ML	A–4
Baxterville: BeB, BeC	More than 30 inches for more than 10 months a year.	0–9	Fine sandy loam	SM	A–4
		9–29	Loam	ML, CL	A–6
		29–68	Clay loam	ML, CL	A–7
Benndale: BnB	More than 48 inches.	0–12	Fine sandy loam	SM, ML	A–4
		12–61	Sandy loam, loam	SM, ML	A–4, A–2
Cahaba Mapped only with McLaurin soils.	More than 60 inches.	0–7	Fine sandy loam	SM	A–4
		7–16	Loam	CL	A–6
		16–61	Sandy loam	SM	A–2, A–4
*Dorovan: Dp For Pamlico part, see Pamlico series.	The water table is at or near the surface.	0–65	Muck	Pt	
Falkner: FaB	About 17 inches during wet periods.	0–3	Loam	ML or CL–ML	A–4
		3–27	Loam	CL	A–6
		27–60	Clay	CH	A–7
*Freestone: FmC, FsD For Susquehanna and Prentiss parts of FsD and Susquehanna and McLaurin parts of FmC, see the respective series.	18 to 28 inches during wet periods.	0–10	Sandy loam	SM, ML	A–4
		10–28	Sandy clay loam	SC or CL	A–6
		28–60	Clay	CH	A–7
Lakeland: LaD	More than 60 inches.	0–83	Sand	SP–SM	A–3
Latonia: Lt	More than 60 inches.	0–32	Sandy loam	SM	A–2, A–4
		32–74	Sand	SP–SM, SM	A–2
Lucy Mapped only with McLaurin soils.	More than 60 inches.	0–22	Loamy sand	SM	A–2
		22–73	Sandy loam	SM–SC, SM	A–4
Mashulaville: Ma	Water table is perched above the fragipan at a depth of about 16 inches or less during wet periods.	0–16	Fine sandy loam	SM	A–4
		16–34	Loam	CL–ML or ML	A–4
		34–48	Sandy loam	SM	A–4
		48–61	Loam	ML or CL	A–4
*McLaurin: McA, McB, McC, MhD, MIC. For Cahaba parts of MhD, see Cahaba series; for Lucy part of MIC, see Lucy series.	More than 60 inches.	0–9	Fine sandy loam	SM or SC	A–4
		9–13	Sandy loam	SM	A–4
		13–26	Loam	ML	A–4
		26–67	Sandy loam	SM or SC	A–4
Osier Mapped only with Trebloc soils.	The water table is at or near the surface.	0–3	Mucky sandy loam.	Pt	
		3–33	Mucky loamy sand.	SM	A–2
		33–60	Loamy sand	SM	A–2
Pamlico Mapped only with Dorovan soils.	The water table is at or near the surface.	0–48	Muck	Pt	
		48–60	Sand	SP–SM	A–2
Prentiss: PnA, PnB, PnC	The water table is perched above the fragipan at a depth of about 27 inches during wet periods.	0–4	Fine sandy loam	SM	A–4
		4–27	Loam	ML, CL	A–4
		27–65	Loam	CL	A–6

See footnote at end of table.

properties significant in engineering

The soils in such mapping units may have different properties and limitations, and for this reason it is necessary to follow that appear in the first column of this table]

Percentage passing sieve—			Permeability [1]	Available water capacity	Reaction	Shrink-swell potential
No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)				
			Inches per hour	*Inches per inch of soil*	*pH*	
100	85–100	40–60	0.63–2.0	0.12–0.15	4.5–5.5	Low.
100	85–100	40–60	0.06–0.20	0.10–0.13	4.5–5.5	Low.
100	70–95	40–50	0.63–2.0	0.10–0.15	4.5–5.5	Low.
100	85–100	60–75	0.20–0.63	0.15–0.20	4.5–5.5	Low.
100	90–100	70–80	0.20–0.63	0.15–0.20	4.5–5.5	Moderate.
100	70–85	40–55	0.63–2.0	0.10–0.15	4.5–5.5	Low.
100	60–95	30–65	0.63–2.0	0.10–0.16	4.5–5.5	Low.
100	80–90	40–50	0.63–2.0	0.12–0.14	4.5–5.5	Low.
100	85–95	60–75	0.63–2.0	0.12–0.17	4.5–5.5	Low.
100	70–95	30–40	2.0–6.3	0.10–0.15	4.5–5.5	Low.
			0–0.06	0.20–0.23	4.5–5.5	Low.
100	85–95	60–75	0.20–0.63	0.15–0.20	4.5–5.5	Low.
100	85–95	60–75	0.20–0.63	0.15–0.20	4.5–5.5	Moderate.
100	90–100	75–95	0.06–0.20	0.15–0.20	4.5–5.5	High.
90–100	70–85	40–55	0.63–2.0	0.10–0.15	4.5–6.0	Low.
100	80–90	45–70	0.20–0.63	0.10–0.15	4.5–6.0	Moderate.
100	90–100	75–95	0.06–0.20	0.15–0.20	4.5–6.0	High.
100	70–80	5–10	6.3–20	0.05–0.10	4.5–5.5	Very low.
90–100	60–70	30–40	2.0–6.3	0.10–0.15	4.5–5.5	Low.
90–100	65–80	10–25	6.3–20	0.05–0.08	4.5–5.5	Low.
95–100	80–90	15–30	6.3–20	0.05–0.10	4.5–5.5	Very low.
100	70–90	40–50	2.0–6.3	0.10–0.15	4.5–5.5	Low.
100	80–90	40–50	0.63–2.0	0.10–0.15	4.5–5.5	Low.
100	85–95	50–60	0.06–2.0	0.08–0.12	4.5–5.5	Low.
100	70–90	40–50	0.06–0.20	0.08–0.12	4.5–5.5	Low.
100	85–95	50–60	0.06–0.20	0.08–0.12	4.5–5.5	Low.
100	80–90	40–50	0.63–2.0	0.12–0.14	4.5–5.5	Low.
100	70–95	40–50	0.63–2.0	0.10–0.15	4.5–5.5	Low.
100	85–95	60–75	0.63–2.0	0.15–0.20	4.5–5.5	Low.
100	70–95	40–50	2.0–6.3	0.10–0.15	4.5–5.5	Low.
			0.63–2.0	0.10–0.15	4.5–5.0	Low.
100	60–75	20–30	0.63–2.0	0.10–0.15	4.5–5.0	Low.
100	50–75	15–30	6.3–20	0.05–0.10	4.5–5.0	Low.
			0.06–2.0	0.20–0.23	4.5–5.5	Low.
100	50–75	5–10	0.06–2.0	0.02–0.05	4.5–5.5	Low.
100	80–90	40–50	0.63–2.0	0.10–0.15	4.5–5.5	Low.
100	85–95	60–75	0.63–2.0	0.10–0.15	4.5–5.5	Low.
100	85–95	60–75	0.20–0.63	0.08–0.12	4.5–5.5	Low.

TABLE 5.—*Estimates of soil properties*

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Classification		
			USDA texture	Unified	AASHO
		Inches			
Sandy alluvial land: Sa. No valid interpretations can be made; properties too variable.					
Susquehanna: SuB, SuC	The water table fluctuates about 15 inches during wet periods.	0–9	Silt loam	ML	A–4
		9–64	Clay	CH	A–7
*Trebloc: Tr, Ts. For Osier part of Ts, see Osier series.	The water table fluctuates at a depth of 10 inches or less during wet periods.	0–12	Silt loam	ML	A–4
		12–23	Silty clay loam.	CL–ML	A–7, A–6
		23–35	Silty clay	CL or CH	A–7
		35–65	Silty clay loam.	CL–ML	A–7

[1] This rating should not be confused with the coefficient (K) used by engineers.

pensive and requires intensive effort; and results are not always satisfactory. *Not suited* indicates that habitat is impractical or impossible to create, improve, or maintain, and unsatisfactory results are probable. The elements of wildlife habitat and classes of wildlife are defined in the following paragraphs.

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

Grasses and legumes are domestic grasses and legumes that are established by planting and furnish food and cover for wildlife. The grasses include such species as bahiagrass, ryegrass, and panicgrass. Legumes include such species as clover, annual lespedeza, and bush lespedeza.

Wild herbaceous upland plants are native or introduced perennial grasses, forbs, and weeds that provide food and cover for upland wildlife. Examples of these are beggarweed, perennial lespedeza, wild bean, pokeberry, and cheatgrass.

Hardwood trees and shrubs are nonconiferous trees, shrubs, and woody vines that produce fruits, nuts, buds, catkins, or foliage (browse) used extensively as food by wildlife. These plants commonly become established through natural processes, but may be planted. They include such species as oak, beech, cherry, dogwood, viburnum, maple, grape, honeysuckle, greenbrier, and elaeagnus.

Wetland food and cover plants are annual and perennial wild herbaceous plants that grow on moist to wet sites, not including submersed or floating aquatics. These plants furnish food or cover mostly for wetland wildlife. Some examples are smartweed, wild millet, spike rush and other rushes, sedges, burreed, tearthumb, and aneilema.

Shallow water developments are those where low dikes and structures for water control are established to create habitat principally for waterfowl. They may be designed so that they can be drained, planted, and flooded, or they may be used as permanent impoundments to grow submersed aquatics. Both freshwater and brackish water developments are included.

Openland wildlife are quail, doves, cottontail rabbit, fox, meadowlark, field sparrow, and other birds and mammals that normally live on cropland, pasture, meadow, lawn, and other openland areas where grasses, herbs, and shrubby plants grow.

Woodland life are woodcock, thrush, vireo, squirrel, deer, raccoon, wild turkey, and other birds and mammals that normally live in wooded areas where hardwood trees and shrubs and coniferous trees grow.

Wetland wildlife are ducks, geese, rail, heron, shore birds, mink, and other birds and mammals that normally live in wet areas, marshes, and swamps.

Engineering Uses of the Soils [6]

Some soil properties are of special interest to engineers because they affect the construction and maintenance of roads, airports, pipelines, building foundations, facilities for water storage, erosion control structures, drainage systems, and sewage disposal systems. Among the properties most important to engineers are permeability, shear strength, compaction characteristics, soil drainage, shrink-swell potential, consolidation potential, grain size, plasticity, reaction, depth to water table, and topography.

Information about the significant properties of the soils of this county and interpretations of these properties in terms of engineering uses are given in tables 5 and 6. This information can be used by engineers, along with information in other parts of the survey, to—

1. Make studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Make preliminary estimates for use in the

[6] P. A. CALHOUN, agricultural engineer, Soil Conservation Service, helped prepare this section.

significant in engineering—Continued

Percentage passing sieve—			Permeability [1]	Available water capacity	Reaction	Shrink-swell Potential
No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)	*Inches per hour*	*Inches per inch of soil*	*pH*	
100	90–100	70–90	0.63–2.0	0.15–0.20	4.5–5.5	Low.
100	90–100	75–95	0–0.06	0.15–0.20	4.5–5.5	High.
	100	70–90	0.63–2.0	0.15–0.20	4.5–5.5	Low.
	100	85–95	0.20–0.63	0.15–0.20	4.5–5.5	Low.
	100	85–95	0.06–0.20	0.10–0.15	4.5–5.5	Moderate.
	100	85–95	0.20–0.63	0.15–0.20	4.5–5.5	Moderate.

planning of agricultural drainage systems, farm ponds, irrigation systems, and diversion terraces.

3. Make preliminary evaluations that will aid in selecting highway, airport, pipeline, and cable locations and in planning detailed investigations at the selected locations.
4. Locate probable sources of sand and other construction materials.
5. Correlate performance of engineering structures with soil mapping units to develop information that will be useful in designing and maintaining certain engineering practices and structures.
6. Determine the suitability of soil mapping units for cross-country movement of vehicles and construction equipment.
7. Supplement the information obtained from other published maps, reports, and aerial photographs for the purpose of making maps and reports that can be readily used by engineers.
8. Develop other preliminary estimates for construction purposes pertinent to the particular area.

With the use of the soil map for identification, the interpretations in this section can be useful for many purposes. They do not eliminate the need for sampling and testing at the site of specific engineering works that involve heavy loads or excavations deeper than the depth of layers reported here. Even in such situations, however, the soil map is useful for planning more detailed field investigations and for indicating the kind of problems that can be expected.

Some of the terms used by soil scientists may be unfamiliar to engineers, and such words as "sand," "silt," and "clay" have special meaning in soil science. These and other special terms are defined in the Glossary.

Engineering classification systems

Two systems of classifying soils are in general use among engineers. Most highway engineers classify soil materials according to the AASHO system (*1*) adopted by the American Association of State Highway Officials. In this system soil materials are classified in seven principal groups. The groups range from A–1, which consists of gravelly soils of high bearing capacity, to A–7, which consists of clay soils that have low strength when wet.

Some engineers prefer to use the Unified Soil Classification System (*11*). This system is based on identification of soils according to their texture and plasticity and their performance as construction materials. Soil materials are identified as coarse grained (8 classes), fine grained (6 classes), or highly organic. The coarse-grained soils are gravels (GW, GP, GM, GC) and sands (SW, SP, SM, SC); the fine-grained soils are silts and clays (identified as ML, CL, OL, MH, CH, and OH); and the highly organic soils are peat (Pt). Soils on the borderline between the classes are designated by symbols for both classes, for example, ML–CL.

Estimates of the classification of each soil in the county according to each of these two systems are given in table 5.

Estimated engineering properties

Table 5 provides estimates of soil properties important in engineering. The estimates are based on field classification and descriptions, on physical and chemical tests of selected representative samples, on test data from comparable soils in adjacent areas, and on experience in working with the soils in Lamar County. Ratings in table 5 apply only to the depths indicated. Bedrock is well below these depths and is not given in the table. Terms used in the table are explained in the paragraphs that follow.

The highest level to which the seasonal water table rises is given in table 5.

Texture is determined by the relative proportions of sand, silt, and clay material less than 2.0 millimeters in diameter.

Permeability indicates the rate at which water moves

TABLE 6.—*Engineering*

[An asterisk in the first column indicates that at least one mapping unit in this series ferent properties and limitations, and for this reason it is necessary to follow carefully

Soil series and map symbols	Suitability as source of—			Soil features affecting—
	Topsoil	Sand	Road fill	Highway location
Basin: Ba	Fair: wetness	Poor: improbable source.	Fair: wetness	Wetness
Baxterville: BeB, BeC	Good	Poor: improbable source.	Fair: fair traffic-supporting capacity.	Low or moderate shrink-swell potential; fair traffic-supporting capacity.
Benndale: BnB	Good	Poor: high in fines.	Good to fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity.
Cahaba Mapped only with McLaurin soils.	Fair: fair thickness of suitable material.	Poor: high in fines.	Good	Slope
*Dorovan: Dp For Pamlico part, see Pamlico series.	Poor: high in organic-matter content.	Poor: improbable source.	Poor: high in organic-matter content; poor traffic-supporting capacity.	Poor traffic-supporting capacity; wetness; flooding.
Falkner: FaB	Good to fair: good to fair thickness of suitable material.	Poor: improbable source.	Poor: poor traffic-supporting capacity; too deep to suitable material.	Poor traffic-supporting capacity; high shrink-swell potential.
*Freestone: FmC, FsD For McLaurin part of FmC, Susquehanna part of FmC or FsD, and Prentiss part of FsD, see their respective series.	Fair: fair thickness of suitable material.	Poor: improbable source.	Fair: wetness; fair traffic-supporting capacity; moderate to high shrink-swell potential.	Fair traffic-supporting capacity; wetness; moderate to high shrink-swell potential.
Lakeland: LaD	Poor: low in fines.	Fair to good: may need washing.	Good	Slight if slope is 0 to 6 percent, moderate if 6 to 12 percent.
Latonia: Lt	Fair: fair thickness of suitable material.	Fair: excessive fines.	Good	Features generally favorable.
Lucy Mapped only with McLaurin soils.	Poor: low in fines.	Fair: fair thickness of suitable material; excessive fines.	Fair: fair traffic-supporting capacity.	Slight if slope is 0 to 6 percent, moderate if more than 6 percent.
Mashulaville: Ma	Good	Poor: improbable source.	Poor: wetness; fair traffic-supporting capacity.	Fair traffic-supporting capacity; wetness.

interpretations

is made up of two or more kinds of soil. The soils in such mapping units may have dif-
the instructions for referring to other series that appear in the first column of this table]

Soil features affecting—Continued					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Reservoir areas	Embankments				
Slow permeability	Poor resistance to piping and erosion.	Needs surface drainage; wetness.	Slow permeability	Nearly level; generally not needed.	Medium available water capacity; sod easily established.
Moderately slow permeability.	Fair slope stability; poor resistance to piping.	Not needed: slope	Moderately slow permeability; medium available water capacity.	Features generally favorable.	Medium available water capacity; moderately erodible.
Moderate permeability.	Fair slope stability; poor resistance to piping and erosion.	Not needed: slope	Moderate permeability; medium available water capacity.	Features generally favorable.	Medium available water capacity; sod easily established.
Moderate permeability.	Poor resistance to piping and erosion.	Not needed: slope	Moderate permeability; medium available water capacity.	Features generally favorable.	Medium available water capacity; highly erodible; sod sometimes difficult to establish.
Unstable material high in organic-matter content.	Poor slope stability; poor resistance to piping and erosion.	Water table at or near surface; boggy.	Not needed; permanent water table at or near surface.	Nearly level; generally not needed.	Low position on landscape; poor natural outlets.
Slow permeability in clay layer.	Fair slope stability; high shrink-swell potential.	Needs surface drainage.	Slow permeability in clay layer; high available water capacity.	Features generally favorable.	High available water capacity; grows good grass cover.
Slow permeability in clay layer.	Good or fair resistance to piping; fair slope stability.	Not needed: slopes	Slow permeability; medium available water capacity.	Features generally favorable.	Medium available water capacity; grows fair to good sod.
Rapid permeability	Rapid permeability; poor slope stability.	Not needed: rapid permeability; slope.	Rapid permeability; low available water capacity.	Fair slope stability	Low available water capacity; difficult to establish vegetation.
Moderately rapid permeability; shallow depth to rapidly permeable layer.	Fair slope stability; poor resistance to piping and erosion.	Not needed	Moderately rapid permeability; medium available water capacity.	Nearly level; generally not needed.	Medium available water capacity; grows good sod.
Permeability rapid in upper 22 inches; moderately rapid below.	Rapid permeability in upper 22 inches; fair slope stability.	Not needed: slope	Rapid permeability in upper 22 inches.	Fair slope stability; rapid permeability in upper 22 inches.	Low available water capacity in upper 22 inches; sometimes difficult to establish vegetative cover.
Features generally favorable; slow permeability.	Fair slope stability; poor resistance to piping and erosion.	Needs surface drainage; slow permeability.	Slow permeability; medium available water capacity.	Nearly level; generally not needed.	Medium available water capacity; sod difficult to establish in fragipan horizon.

TABLE 6.—*Engineering*

Soil series and map symbols	Suitability as source of—			Soil features affecting—
	Topsoil	Sand	Road fill	Highway location
*McLaurin: McA, McB, McC, MhD, MIC. For Cahaba part of MhD, see Cahaba series; for Lucy part of MIC, see Lucy series.	Good	Poor: improbable source.	Good	Slope
Osier Mapped only with Trebloc soils.	Poor: sandy texture.	Fair: excessive fines.	Poor: wetness	Wetness; flooding
Pamlico Mapped only with Dorovan soils.	Poor: high in organic matter content.	Poor: improbable source.	Poor: high in organic-matter content; poor traffic-supporting capacity.	Poor traffic-supporting capacity; wetness; flooding.
Prentiss: PnA, PnB, PnC	Good	Poor: improbable source.	Fair: fair traffic-supporting capacity; wetness.	Fair traffic-supporting capacity; wetness.
Sandy alluvial land: Sa. No interpretations; material too variable.				
Susquehanna: SuB, SuC	Poor: high in fines.	Poor: improbable source.	Poor: high shrink-swell potential; wetness.	Poor traffic-supporting capacity; wetness.
*Trebloc: Tr, Ts For Osier part of Ts, see Osier series.	Fair: high in fines.	Poor: improbable source.	Poor: poor traffic-supporting capacity; wetness.	Poor traffic-supporting capacity; wetness.

downward through undisturbed soil material. The rate depends largely on texture, porosity, and structure of the soil. A rate of less than 0.06 inch per hour is very slow; 0.06 to 0.2 inch is slow; 0.2 to 0.63 inch, moderately slow; 0.63 inch to 2 inches, moderate; 2 to 6.3 inches, moderately rapid; 6.3 to 20 inches, rapid; and more than 20 inches, very rapid. This rating should not be confused with the permeability coefficient "K," used by engineers.

Available water capacity refers to the capacity of a soil to hold water available for use by most plants. It is commonly defined as the difference between the amount of water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. Available water capacity is affected by the texture, structure, and organic-matter content of the soil.

Reaction refers to the degree of acidity or alkalinity of a soil, expressed as a pH value. A pH value of 7.0 is neutral. Lower values indicate acidity, and higher values indicate alkalinity.

Shrink-swell potential indicates the volume change to be expected in soil material with changes in moisture content. Shrinking and swelling of soils cause much damage to roads, building foundations, and other structures. A high shrink-swell potential indicates hazards to the maintenance of structures constructed in, on, or with such materials.

Engineering interpretations

Table 6 contains information useful to engineers and others who plan to use soil material in construction of highways, dam facilities, and buildings. Detrimental or undesirable features are emphasized, but very important desirable features also are listed. The ratings and other interpretations in this table are based on the estimated engineering properties of the soils shown in table 6, on available test data, and on field experience. The information applies to soil depths of 6 feet or less. Deposits of gravel are in some mapping units but are not characteristic of those mapping units in Lamar County. Bedrock is more than 20 feet deep in all mapping units in the county. The terms used in the table are explained in the paragraphs that follow.

interpretations—Continued

Soil features affecting—Continued					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Reservoir areas	Embankments				
Moderate or moderately rapid permeability.	Fair slope stability; poor resistance to piping and erosion.	Not generally needed: moderate or moderately rapid permeability; slope.	Moderate or moderately rapid permeability; medium available water capacity.	Features generally favorable.	Medium available water capacity; grows good to fair sod; slopes subject to erosion.
Rapid permeability; fluctuation of water level.	Fair slope stability; poor resistance to piping and erosion.	High water table; flooding.	Rapid permeability; medium available water capacity.	Nearly level; generally not needed.	Nearly level; generally not needed.
Unstable material; high in organic-matter content.	Poor slope stability; poor resistance to piping and erosion.	Low position on landscape; poor natural outlets.	Not needed; permanent water table at or near surface.	Water table at or near surface; boggy.	Nearly level; generally not needed.
Moderately slow permeability in fragipan.	Fair slope stability; poor resistance to piping and erosion.	Slopes of 0 to 2 percent need surface drainage.	Moderate permeability above fragipan; medium available water capacity.	Features generally favorable; fragipan at a depth of 27 inches.	Medium available water capacity; grows good sod.
Features generally favorable; very slow permeability.	Fair slope stability.	Not needed: slope.	Very slow permeability; high available water capacity.	Plastic clay difficult to work.	High available water capacity; difficult to establish vegetative cover.
Features generally favorable; slow permeability.	Fair slope stability.	Needs surface drainage.	Slow permeability; high available water capacity.	Nearly level; generally not needed.	High available water capacity; grows fair sod.

Topsoil refers to soil material used to topdress lawns, roadbanks, and the like. The ratings indicate suitability for such use. They are based mainly on fertility and organic-matter content.

Ratings for sand are based on the probability that areas of the soil contain deposits of sand coarser than 0.08 millimeter in diameter. Sand is commonly used for filter drains, as aggregate for concrete, and as granular subbase for roads. The ratings do not indicate the quality or extent of deposits.

Road fill is material used to build embankments that support the subbase, base, or surface of roads. The ratings are based on the performance of soil material removed from borrow areas and used for highway subgrade. In general, a sandy material that contains adequate binder is best. Organic materials and plastic clays that have high shrink-swell potential are the poorest. Benndale and Latonia soils generally are the best sources of road fill in Lamar County.

Highway location is affected mainly by ponding, flooding, seasonal high water table, and other hazards that affect the construction and maintenance of highways. The entire profile of undisturbed soil is considered. On soils that are ponded, roads must be constructed on high embankment sections or must be provided with surface and subsurface drains. On soils that are flooded, such as those of the Trebloc and Osier series, roads must be constructed on continuous embankments several feet above the usual level of floodwater.

Farm ponds supply water for livestock and offer opportunities for recreation. They are affected mainly by soil features that influence the rate of seepage. Soils that have moderate to slow permeability and, consequently, slow seepage, can be used for reservoir areas. Embankments are earth-filled dams constructed to impound water. Features that influence the strength and stability of disturbed and compacted soil materials are given.

Agricultural drainage is affected mainly by the presence of a water table, soil permeability, and depth to cemented layers, sand, or other material that impedes or accelerates the movement of water through the soil. Slope also is an important factor. Most nearly

TABLE 7.—*Degree and kind of soil limitations*

[An asterisk in the first column indicates that at least one mapping unit in this series ferent properties and limitations, and for this reason it is necessary to follow carefully

Soil series and map symbols	Small buildings [1]	Sewage lagoons	Septic tank absorption fields
Basin: Ba	Severe: wetness	Slight	Severe: slow permeability; wetness.
Baxterville: BeB, BeC	Moderate: medium bearing strength.	Moderate: slope; moderately slow permeability.	Severe: moderately slow permeability.
Benndale: BnB	Moderate: medium bearing strength.	Moderate: slope; moderate permeability.	Slight
Cahaba Mapped only with McLaurin soils.	Moderate: slope	Severe: slope	Moderate to severe: slope
*Dorovan: Dp For Pamlico part, see Pamlico series.	Severe: wetness; flooding; muck.	Severe: wetness; muck	Severe: wetness; flooding
Falkner: FaB	Severe: wetness; high shrink-swell potential.	Moderate: slope	Severe: slow permeability
*Freestone: FmC, FsD For McLaurin and Susquehanna parts of FmC, and for Susquehanna and Prentiss parts of FsD, see their respective series.	Severe: wetness; high shrink-swell potential.	Moderate to severe: slope	Severe: slow permeability
Lakeland: LaD	Moderate: sand texture	Severe: rapid permeability	Moderate to severe: slope
Latonia: Lt	Slight	Severe: moderately rapid permeability.	Slight
Lucy Mapped only with McLaurin soils.	Slight to severe: slope	Severe moderately rapid permeability in subsoil.	Slight if slope is 2 to 5 percent, moderate if 5 to 8 percent, severe if more than 8 percent.
Mashulaville: Ma	Severe: high water table	Severe: high water table	Severe: high water table during wet periods; slow percolation.
*McLaurin: McA, McB, McC, MhD, MlC For Cahaba part of MhD, see Cahaba series; for Lucy part of MlC, see Lucy series.	Slight to severe: slope	Severe: moderately rapid permeability.	Slight if slope is 0 to 5 percent, moderate if 5 to 8 percent, severe if more than 8 percent.
Osier Mapped only with Trebloc soils.	Severe: high water table	Severe: high water table	Severe: flooding; high water table.
Pamlico Mapped only with Dorovan soils.	Severe: wetness; flooding	Severe: wetness; 15 percent organic material.	Severe: wetness; flooding
Prentiss: PnA, PnB, PnC	Moderate: wetness; medium bearing strength.	Moderate: reservoir site material.	Severe: moderately slow permeability; depth to water table.
Sandy alluvial land: Sa. No interpretations; material too variable.			
Susquehanna: SuB, SuC	Severe: wetness; high shrink-swell potential.	Moderate if slope is 2 to 5 percent, severe if more than 5 percent.	Severe: very slow permeability; high perched water table.
*Trebloc: Tr, Ts For Osier part of Ts, see Osier series.	Severe: flooding; high water table.	Severe: subject to flooding; high water table.	Severe: high water table

[1] Engineers and others should not apply specific values to the estimates for bearing capacity of soils.

to be considered in town and country planning

is made up of two or more kinds of soil. The soils in such mapping units may have dif-
the instructions for referring to other series that appear in the first column of this table]

Camp areas	Picnic areas	Playgrounds	Paths and trails
Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness.
Slight	Slight	Moderate to severe: slope	Slight.
Slight	Slight	Moderate: slope	Slight.
Moderate: slope	Moderate: slope	Severe: slope	Slight.
Severe: wetness; flooding; muck.	Severe: wetness; muck	Severe: wetness; flooding; muck.	Severe: wetness; flooding; muck.
Severe: slow permeability; dusty during dry periods.	Moderate: wetness	Moderate: wetness	Moderate: wetness.
Moderate: slow permeability; dusty during dry periods.	Slight to moderate: slope; wetness.	Moderate to severe: slope	Moderate: wetness.
Severe: sand; subject to blowing.	Severe: sand; subject to blowing.	Severe: sand texture	Severe: sand texture.
Slight	Slight	Slight	Slight.
Moderate: loamy sand surface layer; severe if slope is 12 percent or more.	Moderate: loamy sand surface layer; severe if slope is 12 percent or more.	Moderate: loamy sand surface layer; severe if slope is 5 percent or more.	Moderate: loamy sand surface layer.
Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness.
Slight if slope is 0 to 8 percent, moderate if 8 to 12 percent, severe if more than 12 percent.	Slight if slope is 0 to 8 percent, moderate if 8 to 12 percent, severe if more than 12 percent.	Slight if slope is 0 to 2 percent, moderate if 2 to 5 percent, severe if more than 5 percent.	Slight if slope is 0 to 12 percent, moderate if more than 12 percent.
Severe: flooding; high water table.	Severe: flooding; high water table.	Severe: flooding; high water table.	Severe: flooding; high water table.
Severe: wetness; flooding	Severe: wetness; flooding	Severe: wetness; flooding; organic soils.	Severe: wetness; flooding.
Moderate: moderately slow permeability.	Slight	Moderate: moderately slow permeability; severe if slope is 5 to 8 percent.	Slight.
Moderate: wetness; very slow permeability.	Moderate: wetness	Moderate if slope is 2 to 5 percent, severe if more than 5 percent.	Moderate: wetness.
Severe: wetness; flooding	Severe: wetness	Severe: wetness; flooding	Severe: wetness.

level soils in the county require drainage for crops, but the gently sloping to strongly sloping soils generally do not.

Irrigation systems are affected by such features as slope, erodibility, permeability, and drainage.

Terraces and diversions are essential for effective erosion control and for protecting downslope areas from runoff. Shallowness of the soils and irregular and steep topography are among the features unfavorable for this use.

Waterways for agricultural drainage and erosion control generally are required for soils on flood plains and for nearly level soils on uplands. The erodibility of the soils affects shaping, seeding, and establishing waterways, and a seasonal high water table limits the use of farm equipment.

Town and Country Planning

This section provides information that can be used by community planners, builders, developers, landscape architects, and others interested in nonfarm uses of the soils.

The degree and kind of soil limitations for selected nonfarm uses are shown in table 7. Among the important soil features considered are depth, acidity, slope, permeability, depth to a water table, traffic-supporting capacity, and flood hazard. Permeability ratings should not be confused with the permeability coefficient "K" used by engineers. The information in the table does not eliminate the need for onsite investigation, but it can help guide the selection of sites for a given use. In the following paragraphs the terms used in the table are defined, and the basis for the rating is explained.

Small buildings are houses and other buildings no more than three stories high. The type of sewage disposal system is not considered in the evaluation. (Intensive site preparation generally is required in planning for sewage disposal.) Soils that have *slight* limitations have slopes of less than 6 percent, low shrink-swell potential, high bearing capacity, freedom from flooding, and a water table below a depth of 48 inches all year. Soils that have *moderate* limitations have features generally favorable for this use, except for one or more of the following: slopes of 6 to 12 percent, a seasonal high water table between depths of 24 and 48 inches, and moderate shrink-swell potential. Soils that have *severe* limitations have slopes of more than 12 percent, high shrink-swell potential, frequent flooding, or a seasonal high water table within a depth of 24 inches.

Sewage lagoons are embanked ponds used to hold sewage for the time required for bacterial decomposition. Properties that affect the pond floor and the stability of the embankment are considered. Soils that have *slight* limitations have a water table below a depth of 60 inches, slow to very slow permeability, slopes of less than 2 percent, less than 2 percent content of organic matter, and freedom from flooding. Soils that have *moderate* limitations have a water table at a depth of 40 to 60 inches, moderate permeability, slopes of 2 to 5 percent, 2 to 15 percent content of organic matter, and freedom from flooding. *Severe* limitations are a water table at a depth of 40 inches or less, moderately rapid or rapid permeability, slopes of more than 5 percent, more than 15 percent content of organic matter, and a hazard of flooding.

Septic tank absorption fields are systems of subsurface tile lines that distribute effluent from a septic tank into the natural soil. The soil material between depths of 18 and 72 inches is evaluated. Soils that have *slight* limitations have rapid or moderately rapid permeability, a water table below a depth of 6 feet, freedom from flooding, and slopes of 0 to 5 percent. Soils that have *moderate* limitations have moderate permeability, a water table 4 to 6 feet below the surface, flooding no more than once in five years, and slopes of 5 to 8 percent. Soils that have *severe* limitations have moderately slow to very slow permeability, a water table within 4 feet of the surface, flooding more often than once in five years, and slopes of more than 8 percent.

Camp areas are areas for temporary living out-of-doors in tents, pickup campers, or camping trailers. Site preparation normally includes clearing an area for tents and an area for parking cars and trailers. Soils for camp areas should be well suited to heavy vehicle and pedestrian traffic during the period May to September. Soils that have *slight* limitations for this use have slopes of less than 8 percent, good traffic-supporting capacity, freedom from flooding, and slight inherent erodibility. Soils that have *moderate* limitations have features generally favorable for this use, except for one or more of the following: a water table within a depth of 20 inches during the season of use, moderately slow or slow permeability, and slopes of 8 to 12 percent. Soils that have *severe* limitations have slopes of more than 12 percent, poor traffic-supporting capacity, frequent flooding, or very slow permeability.

Picnic areas, where a meal is eaten out-of-doors, can be expected to be used to some degree throughout the year. The soils should support heavy pedestrian traffic. Site preparation is required for the placement of picnic tables and grills. Soils that have *slight* limitations have slopes of less than 8 percent, good traffic-supporting capacity, freedom from flooding, and slight erodibility. Soils that have *moderate* limitations have features generally favorable for this use, except for one or more of the following: moderate traffic-supporting capacity, flooding once or twice during the season of use, and slopes of 8 to 12 percent. Soils that have *severe* limitations have slopes of more than 12 percent, poor traffic-supporting capacity, frequent flooding, or poor drainage.

Playgrounds are areas used by small children and for baseball, softball, tennis, archery, target and skeet shooting, and other group or competitive sports. Site preparation that includes clearing, grading, shaping, and draining may be required where relatively large areas are used for these activities. Soils that have *slight* limitations have slopes of less than 2 percent, good traffic-supporting capacity, freedom from flooding, and slight erodibility. Soils that have *moderate* limitations have features generally favorable for this use, except for one or more of the following: a water table within a depth of 20 inches for short periods, flooding two or three times during the season of use, slopes of 2 to 5 percent, and fair traffic-supporting capacity. Soils that have *severe* limitations have slopes of more than 25 percent, poor traffic-supporting capacity, or frequent flooding.

Paths and trails are to be used for local and cross-country foot paths and trails and for bridle paths. It is assumed that the soils would be used in their natural

state. Soils that have *slight* limitations have slopes of less than 12 percent, have good traffic-supporting capacity, have a water table below a depth of 20 inches during the season of use, and do not flood more than once a year during the season of use. Soils that have *moderate* limitations have features generally favorable for this use, with the exception of one or more of the following: poor traffic-supporting capacity, slopes between 12 and 25 percent, and flooding two or three times during period of use. Soils that have *severe* limitations have a water table above a depth of 20 inches during the season of use, slopes of more than 25 percent, or flooding more than three times during the season of use.

Formation and Classification of the Soils

This section has three main parts. The first describes the five major factors of soil formation; the second, the processes involved in soil horizon differentiation; and the third, the system of classifying soils and the placement of the soils of Lamar County in the nationwide classification system.

Factors of Soil Formation

Soil is the product of interaction of five major factors of soil formation: climate, living organisms, parent material, relief, and time. The kind of soil formed in one area differs from the kind formed in another area if there has been a difference between the two areas in climate, vegetation, or any other factor of soil formation.

Climate

Lamar County has the warm, humid, subtropical climate characteristic of much of the southeastern United States. This type of climate affects the physical, chemical, and biological relationships in soils, primarily through high temperatures and precipitation.

Water dissolves minerals, supports biological activity, and transports minerals and organic residue in the soil profile. The amount of water that percolates through the soil depends mainly on rainfall, relative humidity, and the physiographic position, topography, and permeability of the soil.

Living organisms

Plants, animals, insects, bacteria, and fungi affect the formation of soils. Gains in organic matter and nitrogen, gains or losses in plant nutrients, and alterations in structure and porosity are some of the changes caused by living organisms.

Vegetation, mainly pine trees, has probably affected soil formation in Lamar County more than other living organisms. Soils on uplands formed under dense forests dominated by pine trees, and soils on flood plains formed under mixed hardwood and pine forest. Forming under trees rather than grasses has contributed to the low organic-matter content of these soils.

Earthworms and other small invertebrates are most active in the upper part of the soil and continuously mix the soil. Rodents and other animals burrow in the soil and contribute to mixing. Little is known about fungi and other micro-organisms in the soils of Lamar County, but it is known that micro-organisms aid in weathering, decomposing organic matter, and fixing nitrogen in the soil.

Parent material

Parent material, the unconsolidated mass from which soil forms, has much to do with the chemical and mineralogical composition of the soil. The parent material of the soils in Lamar County is mainly marine deposits of sandy, loamy, and clayey material.

The clayey soils formed mostly in Hattiesburg clay and Pascagoula clay formations of Miocene age. The loamy and sandy soils are derived mostly from the Citronelle Formation of Pliocene age. Soils on flood plains are derived from material on the nearby uplands. Organic soils formed in an accumulation of plant debris under saturated conditions.

Soils formed in Hattiesburg clay and Pascagoula clay are generally less weathered and contain more bases than those derived from the Citronelle Formation.

Relief

Relief affects soil formation through its influence on drainage, erosion, plant cover, and soil temperature. The relief in Lamar County ranges from nearly level to steep. Most of the nearly level land is on flood plains or stream terraces.

Many of these soils are poorly drained or very poorly drained. Soils on ridgetops are mostly gently sloping or moderately sloping and have better drained horizons than the steeper soils. The steep soils are generally between the ridgetops and the flood plains and have more runoff. They generally show less horizon development than soils on the ridgetops.

Time

The length of time required for soil development depends largely on the effects of the other four factors of soil formation. Less time is generally required for a soil to develop in warm humid regions where the vegetation is luxuriant than in cold dry regions where the vegetation is scant. Also, other factors being equal, less time is required if the parent material is coarse textured than if it is fine textured.

Fairly stable, nearly level soils on interstream divides have more strongly developed horizons than sloping soils in which the rate of geologic erosion approaches that of soil development and a smaller amount of total rainfall percolates through the profile. Soils on the flood plain of Lamar County formed in deposits washed from uplands. However, many of these soils are old enough and have received such a small amount of sediment in recent times that they have formed thick, well-developed horizons.

Processes of Horizon Differentiation

The processes involved in the formation of soil horizons are the accumulation of organic matter, the leaching of calcium carbonates and bases, the reduction and transfer of iron, and the formation and translocation of silicate clay materials. More than one of these processes have been active in most soils.

The accumulation of organic matter in the upper

TABLE 8.—*Classification of soil series*

Series	Family	Subgroup	Order
Basin	Coarse-loamy, siliceous, thermic	Fragiaquic Paleudults	Ultisols.
Baxterville	Fine-loamy, siliceous, thermic	Plinthic Paleudults	Ultisols.
Benndale	Coarse-loamy, siliceous, thermic	Typic Paleudults	Ultisols.
Cahaba [1]	Fine-loamy, siliceous, thermic	Typic Hapludults	Ultisols.
Dorovan	Dysic thermic	Typic Medisaprists	Histosols.
Falkner [2]	Fine-silty, siliceous, thermic	Aquic Paleudalfs	Alfisols.
Freestone	Fine-loamy, siliceous, thermic	Gloss-Aquic Paleudalfs	Alfisols.
Lakeland	Siliceous, thermic, coated	Typic Quartzipsamments	Entisols.
Latonia	Coarse-loamy, siliceous, thermic	Typic Hapludults	Ultisols.
Lucy	Loamy, siliceous, thermic	Arenic Paleudults	Ultisols.
Mashulaville	Coarse-loamy, siliceous, thermic	Typic Fragiaquults	Ultisols.
McLaurin	Coarse-loamy, siliceous, thermic	Typic Hapludults	Ultisols.
Osier	Siliceous, thermic	Typic Psammaquents	Entisols.
Pamlico	Sandy, dysic, thermic	Terric Medisaprists	Histosols.
Prentiss	Coarse-loamy, siliceous, thermic	Glossic Fragiudults	Ultisols.
Susquehanna	Fine, montmorillonitic, thermic	Vertic Paleudalfs	Alfisols.
Trebloc	Fine-silty, siliceous, thermic	Typic Paleaquults	Ultisols.

[1] These soils are taxadjuncts to the Cahaba series. They have a slightly thicker solum than is defined as the range for the series.

[2] These soils are taxadjuncts to the Falkner series. They have less clay and more sand in the upper part of the Bt horizon than is defined as the range for the series.

part of the profile is important in the formation of an A1 horizon. The soils of Lamar County range from very low to high in organic-matter content.

Carbonates and bases have been strongly leached from nearly all the soils of this county. This leaching has contributed to the formation of horizons. Some soil scientists agree that leaching of bases from the upper horizons of a soil generally precedes the translocation of silicate clay materials.

The reduction and transfer of iron is evident in the poorly drained soils and is indicated by a gray color, or gleying, in the subsoil. Some horizons contain yellowish-red and strong-brown mottles and concretions, an indication of the segregation of iron.

In some soils of Lamar County, the translocation of clay minerals has contributed to the development of horizons. The eluviated A2 horizon is generally lighter in color and has less clay than the Bt horizon because the clay has moved downward. The Bt horizon has thin clay films on ped surfaces and, in places, it also has clay coatings and bridgings of sand grains.

Classification of the Soils

Two systems of classifying soils have been used in the United States in recent years. The older system was adopted in 1938 (*8*) and later revised (*7*). The system currently used was adopted for general use by the National Cooperative Soil Survey in 1965 and supplemented in March 1967 and in September 1968 (*6, 10*). This system is under continual study, and readers interested in the development of the system should refer to the latest literature available.

The current system of classification defines classes in terms of observable or measurable properties of soils. It has six categories. Beginning with the most inclusive, the categories are the order, the suborder, the great group, the subgroup, the family, and the series.

Table 8 shows the classification of the soil series of Lamar County according to the current system.

Following are brief descriptions of the six categories in the current system.

ORDER. The ten soil orders recognized are Entisols, Vertisols, Inceptisols, Aridisols, Mollisols, Spodosols, Alfisols, Ultisols, Oxisols, and Histosols. The properties used to differentiate among soil orders are those that tend to give broad climatic groupings of soils. The two exceptions to this are Entisols and Histosols.

Four soil orders are represented in Lamar County. These are Alfisols, Entisols, Ultisols, and Histosols. Alfisols have a clay-enriched B horizon that is high in base saturation. Entisols are recent soils; they lack genetic horizons or have only the beginning of such horizons. Ultisols are mineral soils that are restricted to humid climates. They are commonly old land surfaces that are highly weathered, strongly developed, and have a low base saturation. Histosols formed in organic material composed of muck or peat.

SUBORDER. Each order is divided into suborders, based primarily on characteristics that seem to produce classes that have the greatest genetic similarity. The suborders narrow the broad climatic range permitted in the order. The soil properties used to separate suborders are mainly those that reflect either the presence or absence of waterlogging or those that reflect differences that result from climate or vegetation.

GREAT GROUP. Each suborder is divided into great groups on the basis of similarity 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 has accumulated or those that have a pan that interferes with the growth of roots or the movement of water. The features used are the self-mulching properties of clay, soil temperature, and major differences in chemical composition, mainly calcium, magnesium, sodium, or potassium and the like.

SUBGROUP. Each great group is divided into subgroups, one representing the central, or typical, segment of the group and others, called intergrades, that have properties of the great group and also one or more properties of another great group, suborder, or order.

FAMILY. Families are established within a subgroup primarily on the basis of properties important to the growth of plants or the behavior of soils when they

TABLE 9.—*Average and annual precipitation for period 1931 to 1960*

Reporting Station	Average inches of precipitation												
	January	February	March	April	May	June	July	August	September	October	November	December	Total
Columbia	5.04	5.32	6.34	5.67	4.90	4.93	6.17	4.37	4.34	2.92	3.99	5.78	59.77
Hattiesburg	4.74	5.32	6.73	5.52	5.16	4.16	6.79	5.12	4.21	2.70	4.05	5.68	60.18
Poplarville	4.63	5.04	6.58	5.24	5.07	5.04	7.05	5.70	4.99	2.49	4.29	5.69	61.81

are used for engineering. Among the properties considered are texture, mineralogy, reaction, soil temperature, permeability, thickness of horizons, and consistence.

SERIES. The series has the narrowest range of characteristics of the categories in the classification system and is named after a local place or post office. It is described fully in the section "How This Survey Was Made."

General Nature of the County

Lamar County was established in 1904 from what was formerly part of Marion County. The estimated population in 1969 was 15,060.

The county is mainly rural but has some industries, mostly wood and clothing, in Lumberton, Purvis, and Sumrall. Oil is probably the most important mineral resource in Lamar County. The Baxterville field is almost entirely within the county. A refinery near Purvis is supplied by pipeline from this field.

Lamar County has a good highway and secondary road system. Interstate Highway 59 roughly parallels the Lamar-Forest County line and links New Orleans and Birmingham. U.S. Highway 98 crosses the northern third of the county and runs east and west. U.S. Highway 11 runs north and south through Purvis and Lumberton. State Highways 42, 44, 13, and 589 cross the county.

Physiography, Relief, and Drainage

Lamar County is in the southeastern part of the State. The relief ranges from nearly level on flood plains and mostly gently sloping on ridgetops to steep on side slopes.

Elevations range from slightly more than 400 to less than 200 feet above sea level. The highest elevation of the county is near the northwestern corner. The lowest elevation is along flood plains of the major streams. Approximately three-fourths of the county drains south and east into Bowie Creek, Leaf and Pascagoula Rivers, and one-fourth drains west and south into Pearl River.

Climate [7]

The climate of Lamar County is determined by the large land mass to the north, its subtropical latitude, and the Gulf of Mexico to the south. The average annual temperature is about 67.4° F, and the average annual precipitation is about 59.8 inches. A 30-year high precipitation of 87.8 inches occurred in 1961, and a 30-year low of 37.8 inches in 1963.

Temperatures climb to 90° or warmer an average of about 90 to 105 days per year, mainly from May to October. During July and August, Lamar County is estimated to average temperatures of 90° or higher on 4 out of 5 days. In most years the temperature rises into the upper nineties or lower one hundreds. The average summer temperature is about 81°, and July is the hottest month in most years. Occasionally during summer the pressure distribution alters to bring westerly or northerly winds. When the period of change is extended, it results in a period of hotter, drier weather. If this period is prolonged, drought conditions may develop.

Temperatures drop to 32° or colder an average of about 20 to 30 days per year, mainly from November to March. In fall the average date for the first occurrence of 32° or lower is in the early and middle part of November. In some years this date has been later than December 31. Temperatures drop below 20° in about half the years. On the whole, the average temperature in winter is about 52°. In spring the last occurrence of 32° or colder has an average date in the middle or late part of March. Between the last occurrence of 32° or colder in spring and the first in fall is a freeze-free period of about 225 to 240 days.

The average rainfall during the growing season is 32.4 inches. The wettest months are March and July in most years, and the driest months are September, October, and November in 5 out of 7 years. Table 9 shows rainfall recorded at three nearby weather stations (*5*).

The prevailing winds from the Gulf of Mexico provide a moist, subtropical climate favorable to the development of thunderstorms. During the warmer months, most rain is associated with afternoon and evening thunderstorms. Rain associated with summer thunderstorms is erratic and usually varies considerably within the county on a given day. Late in fall, in winter, and early in spring precipitation is associated with passing weather systems. Thunderstorms occur an average of 65 to 75 days a year.

Snow is not of much economic importance in the county. Many years have no measurable snowfall. When snow does fall, it seldom remains on the ground more than a few days.

Prevailing winds are from the southeast to south during the warmer parts of spring and summer. During the colder parts of fall and winter, the prevailing winds are from the north and northeast. Average speed of the wind is 10 miles per hour or less, except during storms. Damaging winds are associated mostly with thunderstorms.

It is estimated that about three-fourths of the hours in a year have a relative humidity of 60 to 100 percent.

[7] E. J. SALTSMAN, climatologist for Mississippi, National Weather Service, U.S. Department of Commerce, prepared this section from data recorded at Columbia in Marion County.

Farming

The main farm products grown in Lamar County are timber, cattle, and soybeans.

About 73 percent of the county is commercial forest. Beef cattle are the most important of the livestock enterprises. The estimated number of cows and calves in January 1971 was 26,000 head. Soybeans is the most important cultivated crop; about 6,300 acres was harvested in 1970. Several pecan orchards and one large pecan nursery are near Lumberton.

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Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates such as crumbs, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

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

Argillic horizon. Clay-enriched layer, generally the B2 or B3 horizon.

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.

Contour farming. Plowing, cultivating, planting, and harvesting in rows that are at right angles to the natural direction of the slope or that are parallel to terrace grade.

Coppice. A newly cutover area in which sprouts are growing up.

Diversion, or diversion terrace. A ridge of earth, generally a terrace, that is built to divert runoff from its natural course and, thus, to protect areas downslope from the effects of such runoff.

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.

Gleyed soil. A soil in which waterlogging and lack of oxygen have caused the material in one or more horizons to be neutral gray in color. The term "gleyed" is applied to soil horizons with yellow and gray mottling caused by intermittent waterlogging.

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

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

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

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (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.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

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

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 dliameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

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

Percolation. The downward movement of water through the soil.

Plinthite. More or less clayey, red or dark-red material, ordinarily in the form of mottles and high in iron content, that hardens irreversibly if exposed to repeated alternate wetting and drying. In a moist soil, plinthite can be cut with a spade, whereas ironstone, the irreversibly hardened equivalent, cannot be cut but may be broken or shattered with a spade.

Pore space. That fraction of the total space in a soil that is not occupied by solid particles.

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	8.4 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.

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.

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 earthly parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal,) *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (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.

Surface layer. A term used in nontechnical soil descriptions for one or more layers above the subsoil. Includes A horizon and part of B horizon; has no depth limit.

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."

Topsoil. A presumed fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Water bar. A ridge made across a hill road to divert rainwater to one side.

Water table. The highest part of the soil or underlying rock material that is wholly saturated with water. In some places an upper, or perched, water table may be separated from a lower one by a dry zone.

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.

GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and that of the soil series to which the mapping unit belongs. Other information is given in tables as follows:

Acreage and extent, table 1, page 5.
Predicted yields, table 2, page 23.
Woodland, table 3, page 24.
Engineering, tables 5 and 6, pages 28 to 35.

1/ The delineations are much larger and the composition of these units is more variable than other mapping units in the county. Mapping has been controlled well enough, however, for the anticipated use of the soils.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1975— 594-885/21

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