United States Department of Agriculture

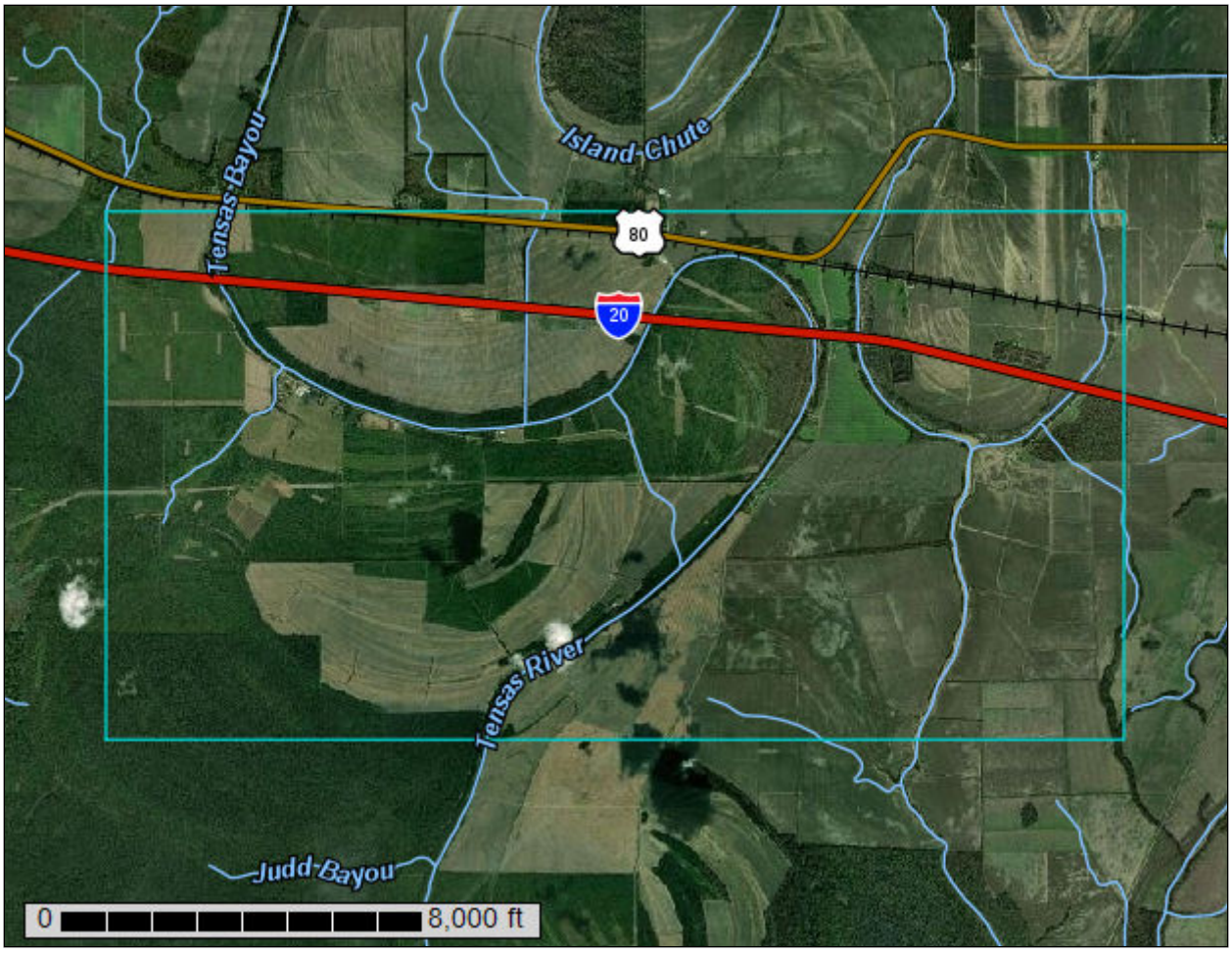
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Madison Parish, Louisiana

Madison Parish LA along I20



July 16, 2018

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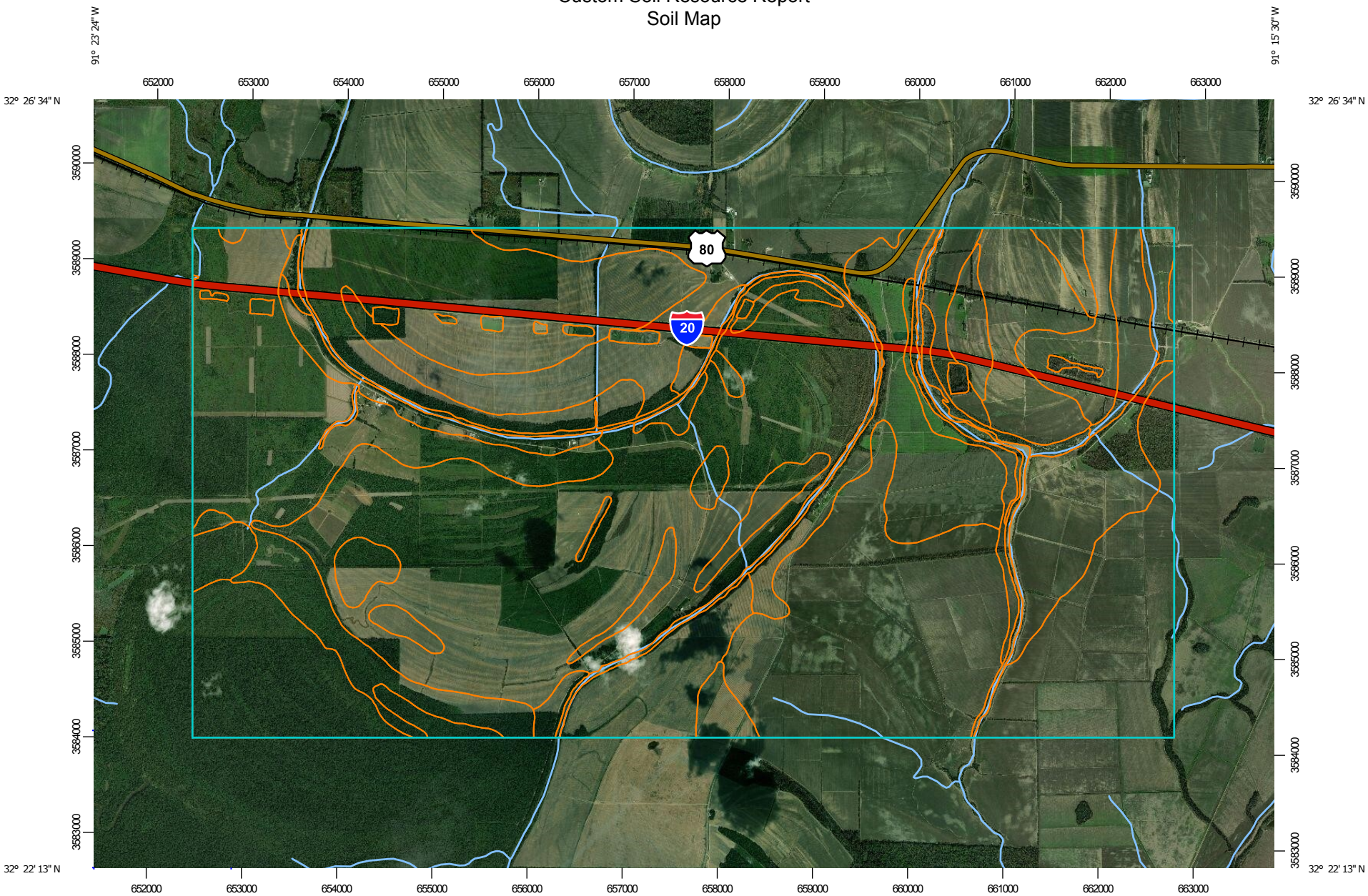

Map Scale: 1:56,700 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 500 1000 2000 3000

Feet
0 2500 5000 10000 15000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
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Water Features
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Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Madison Parish, Louisiana
Survey Area Data: Version 8, Oct 4, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 11, 2011—Nov 9, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
De	Dundee silty clay loam	22.5	0.2%
Ds	Dundee-Sharkey complex, gently undulating	432.4	3.2%
Sc	Sharkey clay, 0 to 1 percent slopes, rarely flooded, south	5,362.3	39.3%
Sd	Sharkey clay, undulating	52.4	0.4%
Sf	Sharkey clay, 0 to 1 percent slopes, frequently flooded	149.8	1.1%
Ta	Tensas silty clay, 0 to 1 percent slopes, rarely flooded	1,253.5	9.2%
Ts	Tensas-Sharkey complex, 0 to 3 percent slopes, gently undulating	5,229.6	38.4%
Tu	Tunica clay, 0 to 1 percent slopes, rarely flooded	804.9	5.9%
W	Water	325.6	2.4%
Totals for Area of Interest		**13,632.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Madison Parish, Louisiana

De—Dundee silty clay loam

Map Unit Setting

National map unit symbol: w4c5
Mean annual precipitation: 48 to 67 inches
Mean annual air temperature: 54 to 75 degrees F
Frost-free period: 215 to 273 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Dundee and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dundee

Setting

Landform: Natural levees
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

H1 - 0 to 9 inches: silty clay loam
H2 - 9 to 33 inches: silty clay loam
H3 - 33 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Tensas

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Sharkey

Percent of map unit: 5 percent
Landform: Depressions

Hydric soil rating: Yes

Ds—Dundee-Sharkey complex, gently undulating

Map Unit Setting

National map unit symbol: w4c6
Elevation: 0 to 80 feet
Mean annual precipitation: 48 to 67 inches
Mean annual air temperature: 54 to 75 degrees F
Frost-free period: 215 to 273 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Dundee and similar soils: 55 percent
Sharkey and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dundee

Setting

Landform: Natural levees
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 33 inches: silty clay loam
H3 - 33 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Sharkey

Setting

Landform: Natural levees
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium

Typical profile

H1 - 0 to 6 inches: clay
H2 - 6 to 40 inches: clay
H3 - 40 to 83 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Minor components

Percent of map unit: 10 percent
Landform: Depressions
Hydric soil rating: Yes

Sc—Sharkey clay, 0 to 1 percent slopes, rarely flooded, south

Map Unit Setting

National map unit symbol: 2rv6m
Elevation: 0 to 260 feet
Mean annual precipitation: 45 to 62 inches
Mean annual air temperature: 45 to 77 degrees F
Frost-free period: 226 to 335 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sharkey and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sharkey

Setting

Landform: Backswamps, natural levees
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium

Typical profile

Ap - 0 to 5 inches: clay
Bg - 5 to 28 inches: clay
Bssg - 28 to 49 inches: clay
Cssyg - 49 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 2 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 3.0
Available water storage in profile: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Tunica

Percent of map unit: 5 percent
Landform: Natural levees
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Dowling

Percent of map unit: 3 percent
Landform: Oxbows

Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Commerce

Percent of map unit: 2 percent
Landform: Natural levees
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Sd—Sharkey clay, undulating

Map Unit Setting

National map unit symbol: w4cb
Elevation: 0 to 80 feet
Mean annual precipitation: 48 to 67 inches
Mean annual air temperature: 54 to 75 degrees F
Frost-free period: 215 to 273 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sharkey and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sharkey

Setting

Landform: Natural levees
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium

Typical profile

H1 - 0 to 6 inches: clay
H2 - 6 to 40 inches: clay
H3 - 40 to 83 inches: clay

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent

Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Minor components

Percent of map unit: 10 percent
Landform: Depressions
Hydric soil rating: Yes

Sf—Sharkey clay, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2qr6w
Elevation: 0 to 80 feet
Mean annual precipitation: 53 to 62 inches
Mean annual air temperature: 61 to 66 degrees F
Frost-free period: 250 to 310 days
Farmland classification: Not prime farmland

Map Unit Composition

Sharkey and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sharkey

Setting

Landform: Backswamps, flood plains
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey alluvium

Typical profile

A - 0 to 10 inches: clay
Bssg1 - 10 to 30 inches: clay
Bssg2 - 30 to 41 inches: clay
Bssg3 - 41 to 84 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Frequent
Frequency of ponding: Occasional
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Dowling
Percent of map unit: 3 percent
Landform: Oxbows
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Tunica
Percent of map unit: 2 percent
Landform: Natural levees
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Newellton
Percent of map unit: 0 percent
Landform: Natural levees
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ta—Tensas silty clay, 0 to 1 percent slopes, rarely flooded

Map Unit Setting
National map unit symbol: 2v189
Elevation: 30 to 100 feet
Mean annual precipitation: 48 to 61 inches
Mean annual air temperature: 65 to 67 degrees F
Frost-free period: 210 to 305 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Tensas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tensas

Setting

Landform: Natural levees
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey alluvium over loamy alluvium

Typical profile

Ap - 0 to 4 inches: silty clay
Btg1 - 4 to 10 inches: silty clay
Btg2 - 10 to 26 inches: silty clay
2BCg - 26 to 39 inches: clay loam
2Cg - 39 to 61 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Dundee

Percent of map unit: 10 percent
Landform: Natural levees
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sharkey

Percent of map unit: 4 percent
Landform: Swales, meander scrolls
Landform position (three-dimensional): Talf, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Alligator

Percent of map unit: 1 percent
Landform: Backswamps, flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Ts—Tensas-Sharkey complex, 0 to 3 percent slopes, gently undulating

Map Unit Setting

National map unit symbol: 2sscs
Elevation: 50 to 90 feet
Mean annual precipitation: 55 to 59 inches
Mean annual air temperature: 64 to 65 degrees F
Frost-free period: 230 to 300 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Tensas and similar soils: 52 percent
Sharkey and similar soils: 38 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tensas

Setting

Landform: Natural levees
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey alluvium over loamy alluvium

Typical profile

Ap - 0 to 4 inches: silty clay
Btg1 - 4 to 12 inches: silty clay
Btg2 - 12 to 27 inches: silty clay
2BC1 - 27 to 36 inches: silty clay loam
2BC2 - 36 to 48 inches: silt loam
2C - 48 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None

Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Sharkey

Setting

Landform: Swales, meander scrolls
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Clayey alluvium

Typical profile

Ap1 - 0 to 4 inches: clay
Ap2 - 4 to 7 inches: clay
Bg1 - 7 to 16 inches: clay
Bg2 - 16 to 25 inches: clay
BCg - 25 to 40 inches: clay
Cg - 40 to 68 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Rare
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Tunica

Percent of map unit: 5 percent
Landform: Natural levees
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear

Hydric soil rating: No

Dundee

Percent of map unit: 5 percent
Landform: Natural levees
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Tu—Tunica clay, 0 to 1 percent slopes, rarely flooded

Map Unit Setting

National map unit symbol: 2x0tl
Elevation: 50 to 100 feet
Mean annual precipitation: 55 to 60 inches
Mean annual air temperature: 64 to 67 degrees F
Frost-free period: 215 to 295 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Tunica and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunica

Setting

Landform: Natural levees
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium over loamy alluvium

Typical profile

Ap - 0 to 6 inches: clay
Bg - 6 to 32 inches: clay
2Cg - 32 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water storage in profile: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Sharkey

Percent of map unit: 5 percent
Landform: Swales, flood-plain steps, meander scrolls
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Newellton

Percent of map unit: 5 percent
Landform: Natural levees
Landform position (three-dimensional): Riser, rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Commerce

Percent of map unit: 5 percent
Landform: Natural levees
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

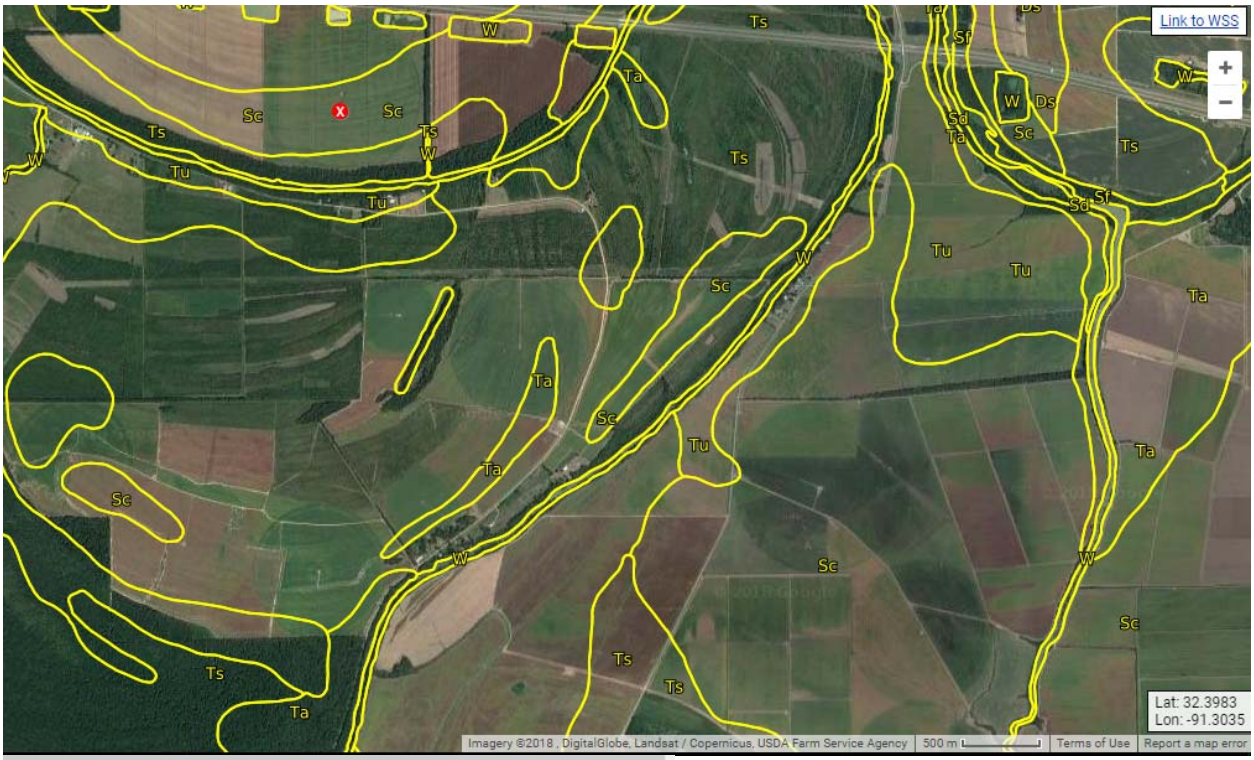
W—Water

Map Unit Setting

National map unit symbol: w4cn
Mean annual precipitation: 48 to 67 inches
Mean annual air temperature: 54 to 75 degrees F
Frost-free period: 215 to 273 days
Farmland classification: Not prime farmland

Map Unit Composition

Water, large: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.



Sharkey clay, 0 to 1 percent slopes, rarely flooded, south (Sc)

▲ Map Unit Composition

90% - ***Sharkey***
Geomorphic Position: *backswamps*

5% - ***Tunica***
Geomorphic Position: *natural levees*

3% - ***Dowling***
Geomorphic Position: *oxbows*

2% - ***Commerce***
Geomorphic Position: *natural levees*

▲ Map Unit Data

Map Unit Key: *808551*

Type: *Consociation* ?

Farmland Class: *All areas are prime farmland*

Available Water Storage (0-100cm): *11.76 cm*

Flood Frequency (Dominant Condition): *Rare*

Flood Frequency (Maximum): *Rare*

Ponding Frequency: *3*

Drainage Class (Dominant Condition): *Poorly drained* ?

Drainage Class (Wettest Component): *Poorly drained* ?

Proportion of Hydric Soils: *93%* ?

Min. Water Table Depth (Annual): *n/a*

Min. Water Table Depth (April-June): *n/a*

Min. Bedrock Depth: *n/a*

▲ Survey Metadata

Soil Survey Area: *LA065* ?

Scale: *1:24,000* ?

Published: *1972* ?

Sharkey

Soil Data Explorer | Series Extent Explorer | Description

▲ Soil Profiles

Typical Profile

Org. Matter ? >

Clay | Sand

Ksat | pH

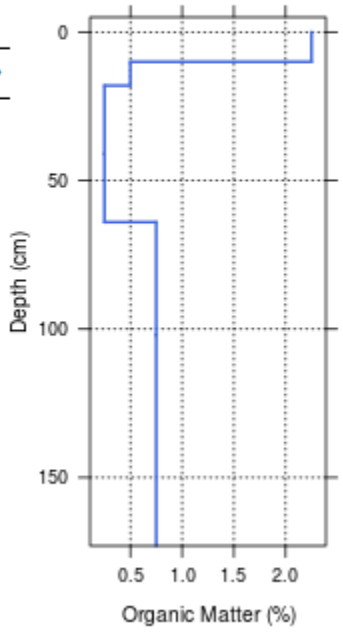
Kf Factor | EC

SAR | $CaCO_3$

Gypsum

CEC @ pH7

Linear Ext.



View Source Data

Depth Range (cm)	Horizon Designation	Percent Clay	Percent Sand	Percent Organic Matter	pH by water Extraction	Sat. Hydraulic Conductivity (mm/hr)	EC (dS/m)	SAR (%)	Carbonates (% of < 2 mm)	Gypsum (% of < 20 mm)	CEC at pH 7 (cmol charge / kg soil)	K Factor	LEP	Oven-Dry D_b (g/cm^3)
0 - 10	*Ap1*	*66.3*	*3.5*	*2.25*	*5.5*	*0.756*	*0.3*	*0*	*0*	*0*	*48.2*	*.20*	*15*	*1.75*
10 - 18	*Ap2*	*66.3*	*3.5*	*0.5*	*5.5*	*0.756*	*0.3*	*0*	*0*	*0*	*45.4*	*.20*	*14.3*	*1.8*
18 - 41	*Bg1*	*70.9*	*3.1*	*0.25*	*5.5*	*0.756*	*3.4*	*1*	*0*	*0*	*47.2*	*.20*	*15.5*	*1.88*
41 - 64	*Bg2*	*57.2*	*6.8*	*0.25*	*5.5*	*0.756*	*1.4*	*1*	*0*	*0*	*39.5*	*.24*	*11.6*	*1.92*
64 - 102	*BCg*	*55.8*	*6.4*	*0.75*	*6*	*0.756*	*0*	*0*	*0*	*0*	*39.7*	*.24*	*11.4*	*1.85*
102 - 173	*Cg*	*55.8*	*6.4*	*0.75*	*6.6*	*0.756*	*0*	*0*	*0*	*0*	*39.7*	*.24*	*11.4*	*1.85*

All Horizon Data

▲ Soil Taxonomy

Order: *Vertisols*

Suborder: *Aquerts* *Map of Suborders*

Greatgroup: *Epiaquerts*

Subgroup: *Chromic Epiaquerts*

Family: *Very-fine, smectitic, thermic Chromic Epiaquerts*

Soil Series: *Sharkey*

▲ Land Classification

CA Storie Index: *n/a*

Land Capability Class (non-irrigated): *3-w* ?

Land Capability Class (irrigated): - ?

Ecological Site Description: *n/a* ?

Forage Suitability Group: *n/a* ?

▲ Hydraulic and Erosion Ratings

Wind Erodibility Group: *4* ?

Wind Erodibility Index: *86* ?

T Erosion Factor: *5* ?

Runoff: *Negligible*

Drainage: *Poorly drained*

Hydric Rating: *Yes (Wooded under natural conditions)* ?

Hydrologic Group: *Group D* ?

Parent Material: *clayey alluvium*

Total Plant Available Water (cm): *20.58*

▲ Forest Productivity

Common name (*Scientific name*) Site Index – Site Index Curve Number	Productivity (cu.ft./ac./yr.)
sugarberry (*Celtis laevigata*) n/a – n/a	n/a
green ash (*Fraxinus pennsylvanica*) n/a – n/a	n/a
honeylocust (*Gleditsia triacanthos*) n/a – n/a	n/a
sweetgum (*Liquidambar styraciflua*) 90 – n/a	100
swamp chestnut oak (*Quercus michauxii*) n/a – n/a	n/a
water oak (*Quercus nigra*) 90 – n/a	86
willow oak (*Quercus phellos*) 100 – n/a	100
Nuttall oak (*Quercus texana*) 90 – n/a	n/a
cedar elm (*Ulmus crassifolia*) n/a – n/a	n/a

▲ Soil Suitability Ratings

Agriculture | Forestry | Waste Related | Engineering | Irrigation | Urban/Recreational | DHS | Wildlife | Runoff

Agriculture Ratings

Pesticide Loss Potential-Leaching -- Very limited
Pesticide Loss Potential-Soil Surface Runoff -- Not limited

Engineering Ratings

Construction Materials; Roadfill -- Poor
Construction Materials; Gravel Source -- Poor
Construction Materials; Sand Source -- Poor
Construction Materials; Topsoil -- Poor
Construction Materials; Reclamation -- Poor
Septic Tank Absorption Fields -- Very limited
Unpaved Local Roads and Streets -- Very limited
Shallow Excavations -- Very limited
Dwellings W/O Basements -- Very limited
Dwellings With Basements -- Very limited
Small Commercial Buildings -- Very limited
Local Roads and Streets -- Very limited
Lawn, Landscape, Golf Fairway -- Very limited
Sanitary Landfill (Trench) -- Very limited
Sewage Lagoons -- Very limited
Sanitary Landfill (Area) -- Very limited
Daily Cover for Landfill -- Very limited

Waste Related Ratings

Manure and Food Processing Waste -- Very limited
Land Application of Municipal Sewage Sludge -- Very limited
Rapid Infiltration Disposal of Wastewater -- Very limited
Irrigation Disposal of Wastewater -- Very limited
Slow Rate Process Treatment of Wastewater -- Very limited
Overland Flow Process Treatment of Wastewater -- Very limited

Irrigation Ratings

Excavated Ponds (Aquifer-fed) -- Very limited
Embankments, Dikes, and Levees -- Very limited
Irrigation, Surface (level) -- Very limited
Irrigation, Surface (graded) -- Very limited
Irrigation, Micro (above ground) -- Very limited
Irrigation, Sprinkler (close spaced outlet drops) -- Very limited
Irrigation, Sprinkler (general) -- Very limited
Irrigation, General -- Very limited
Subsurface Water Management, System Performance -- Very limited
Subsurface Water Management, System Installation -- Very limited
Subsurface Water Management, Outflow Quality -- Very limited
Surface Water Management, System -- Somewhat limited
Irrigation, Micro (subsurface drip) -- Very limited
Pond Reservoir Area -- Not limited

DHS Ratings

Rubble and Debris Disposal, Large-Scale Event -- Severely limited
Suitability for Clay Liner Material -- Poor
Site for Composting Facility -- Very limited
Site for Composting Facility -- Very limited
Suitability for Composting Medium and Final Cover -- Poor
Potential for Radioactive Sequestration -- Moderate sequestration potential
Potential for Radioactive Bioaccumulation -- Very low bioaccumulation potential
Catastrophic Mortality, Large Animal Disposal, Pit -- Very limited
Catastrophic Mortality, Large Animal Disposal, Trench -- Very limited

Wildlife Ratings

Crawfish Aquaculture (TX) -- Not limited
Chufa for Turkey Forage (LA) -- Very poorly suited
Gopher Tortoise Burrowing Suitability -- Unsuitable

Dowling

Soil Data Explorer | Series Extent Explorer | Description

▲ Soil Profiles

Typical Profile >

Org. Matter | Clay

Sand | K_{sat}

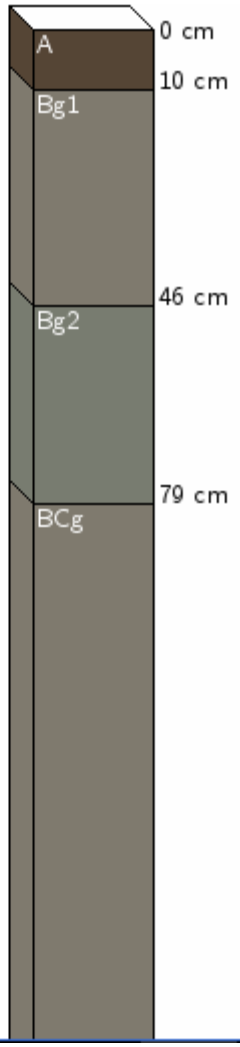
pH | K_f Factor

EC | SAR

$CaCO_3$ | Gypsum

CEC @ pH7

Linear Ext.



▲ Soil Taxonomy

Order: *Inceptisols*

Suborder: *Aquepts* *Map of Suborders*

Greatgroup: *Endoaquepts*

Subgroup: *Vertic Endoaquepts*

Family: *Very-fine, smectitic, nonacid, thermic Vertic Endoaquepts*

Soil Series: *Dowling*

▲ Land Classification

CA Storie Index: *n/a*

Land Capability Class (non-irrigated): *7-w*

Land Capability Class (irrigated): -

Ecological Site Description: *n/a*

Forage Suitability Group: *n/a*

▲ Hydraulic and Erosion Ratings

Wind Erodibility Group: *8*

Wind Erodibility Index: *0*

T Erosion Factor: *5*

Runoff: *Negligible*

Drainage: *Very poorly drained*

Hydric Rating: *Yes (Wooded under natural conditions)*

Hydrologic Group: *Group D*

Parent Material: *clayey alluvium*

Total Plant Available Water (cm): *38.57*

▲ Forest Productivity

Common name (*Scientific name*) Site Index – Site Index Curve Number	Productivity (cu.ft./ac./yr.)
red maple (*Acer rubrum*) n/a – n/a	n/a
water hickory (*Carya aquatica*) n/a – n/a	n/a
water tupelo (*Nyssa aquatica*) n/a – n/a	n/a
Overcup Oak (*Quercus lyrata*) n/a – n/a	n/a
black willow (*Salix nigra*) n/a – n/a	n/a
baldcypress (*Taxodium distichum*) 96 – n/a	86

▲ Soil Suitability Ratings

Agriculture Ratings

Pesticide Loss Potential-Leaching -- Very limited
Pesticide Loss Potential-Soil Surface Runoff -- Not limited

Forestry Ratings

Potential Fire Damage Hazard -- Low
Potential Seedling Mortality -- High
Potential Erosion Hazard (Off-Road/Off-Trail) -- Slight
Soil Rutting Hazard -- Severe
Road Suitability (Natural Surface) -- Poorly suited
Potential Erosion Hazard (Road/Trail) -- Slight
Log Landing Suitability -- Poorly suited
Construction Limitations for Haul Roads/Log Landings -- Severe
Harvest Equipment Operability -- Poorly suited
Mechanical Site Preparation (Surface) -- Poorly suited
Mechanical Site Preparation (Deep) -- Unsuited
Mechanical Planting Suitability -- Poorly suited
Hand Planting Suitability -- Poorly suited

Waste Related Ratings

Manure and Food Processing Waste -- Very limited
Land Application of Municipal Sewage Sludge -- Very limited
Rapid Infiltration Disposal of Wastewater -- Very limited
Irrigation Disposal of Wastewater -- Very limited
Slow Rate Process Treatment of Wastewater -- Very limited
Overland Flow Process Treatment of Wastewater -- Very limited

Engineering Ratings

Construction Materials; Roadfill -- Poor
Construction Materials; Gravel Source -- Poor
Construction Materials; Sand Source -- Poor
Construction Materials; Topsoil -- Poor
Construction Materials; Reclamation -- Poor
Septic Tank Absorption Fields -- Very limited
Unpaved Local Roads and Streets -- Very limited
Shallow Excavations -- Very limited
Dwellings W/O Basements -- Very limited
Dwellings With Basements -- Very limited
Small Commercial Buildings -- Very limited
Local Roads and Streets -- Very limited
Lawn, Landscape, Golf Fairway -- Very limited
Sanitary Landfill (Trench) -- Very limited
Sewage Lagoons -- Very limited
Sanitary Landfill (Area) -- Very limited
Daily Cover for Landfill -- Very limited

Irrigation Ratings

Excavated Ponds (Aquifer-fed) -- Very limited
Embankments, Dikes, and Levees -- Very limited
Irrigation, Surface (level) -- Very limited
Irrigation, Surface (graded) -- Very limited
Irrigation, Micro (above ground) -- Very limited
Irrigation, Sprinkler (close spaced outlet drops) -- Very limited
Irrigation, Sprinkler (general) -- Very limited
Irrigation, General -- Very limited
Subsurface Water Management, System Performance -- Very limited
Subsurface Water Management, System Installation -- Very limited
Subsurface Water Management, Outflow Quality -- Very limited
Surface Water Management, System -- Somewhat limited
Irrigation, Micro (subsurface drip) -- Very limited
Pond Reservoir Area -- Not limited

DHS Ratings

Rubble and Debris Disposal, Large-Scale Event -- Severely limited
Suitability for Clay Liner Material -- Poor
Site for Composting Facility -- Very limited
Site for Composting Facility -- Very limited
Suitability for Composting Medium and Final Cover -- Poor
Potential for Radioactive Sequestration -- High sequestration potential
Potential for Radioactive Bioaccumulation -- Very low bioaccumulation potential
Catastrophic Mortality, Large Animal Disposal, Pit -- Very limited
Catastrophic Mortality, Large Animal Disposal, Trench -- Very limited

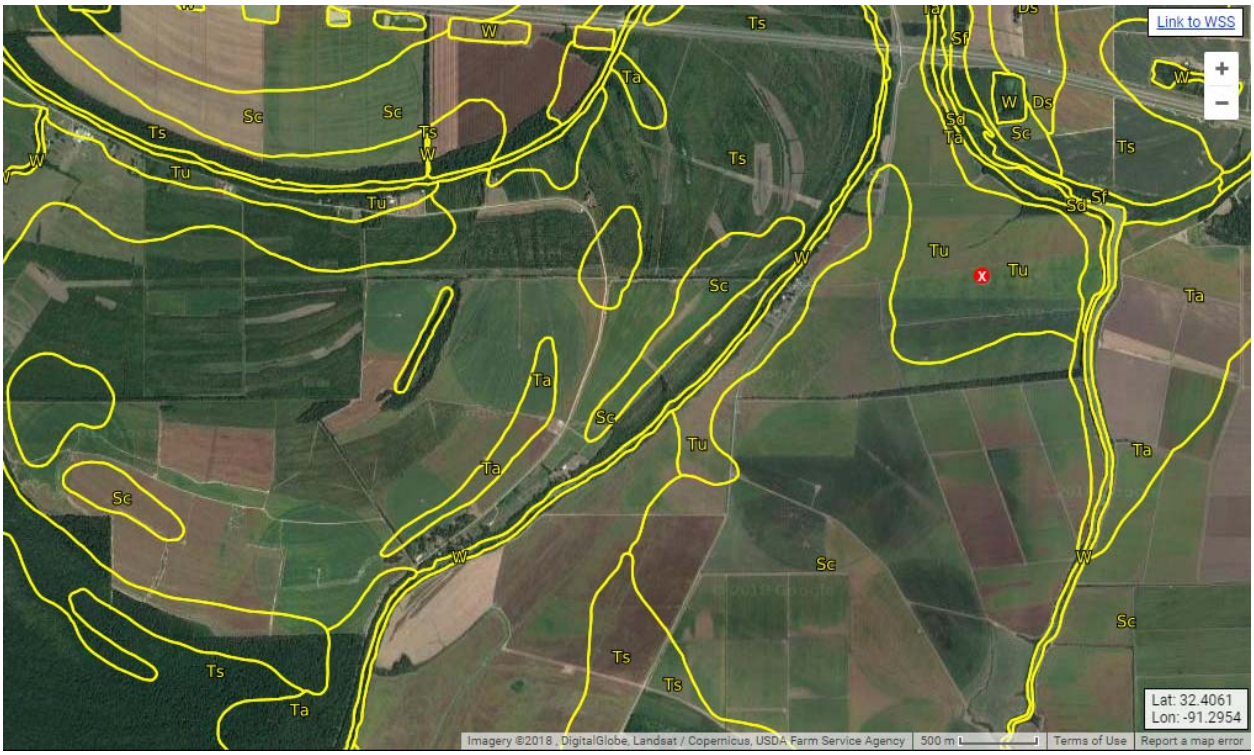
Wildlife Ratings

Crawfish Aquaculture (TX) -- Not limited
Chufa for Turkey Forage (LA) -- Very poorly suited
Gopher Tortoise Burrowing Suitability -- Unsuitable

Urban / Recreational Ratings

Off-Road Motorcycle Trails -- Very limited
Camp Areas -- Very limited
Picnic Areas -- Very limited
Paths and Trails -- Very limited
Playgrounds -- Very limited

Next Location in Chosen Area of Interest in Madison Parish Louisiana



Tunica clay, 0 to 1 percent slopes, rarely flooded (Tu)

▲ Map Unit Composition

85% - ***Tunica***
Geomorphic Position: *natural levees*

5% - ***Sharkey***
Geomorphic Position: *swales*

5% - ***Newellton***
Geomorphic Position: *natural levees*

5% - ***Commerce***
Geomorphic Position: *natural levees*

▲ Map Unit Data

Map Unit Key: *808559*

Type: *Consociation* ?

Farmland Class: *All areas are prime farmland*

Available Water Storage (0-100cm): *16.31 cm*

Flood Frequency (Dominant Condition): *Rare*

Flood Frequency (Maximum): *Rare*

Ponding Frequency: *0*

Drainage Class (Dominant Condition): *Poorly drained* ?

Drainage Class (Wettest Component): *Poorly drained* ?

Proportion of Hydric Soils: *5%* ?

Min. Water Table Depth (Annual): *n/a*

Min. Water Table Depth (April-June): *n/a*

Min. Bedrock Depth: *n/a*

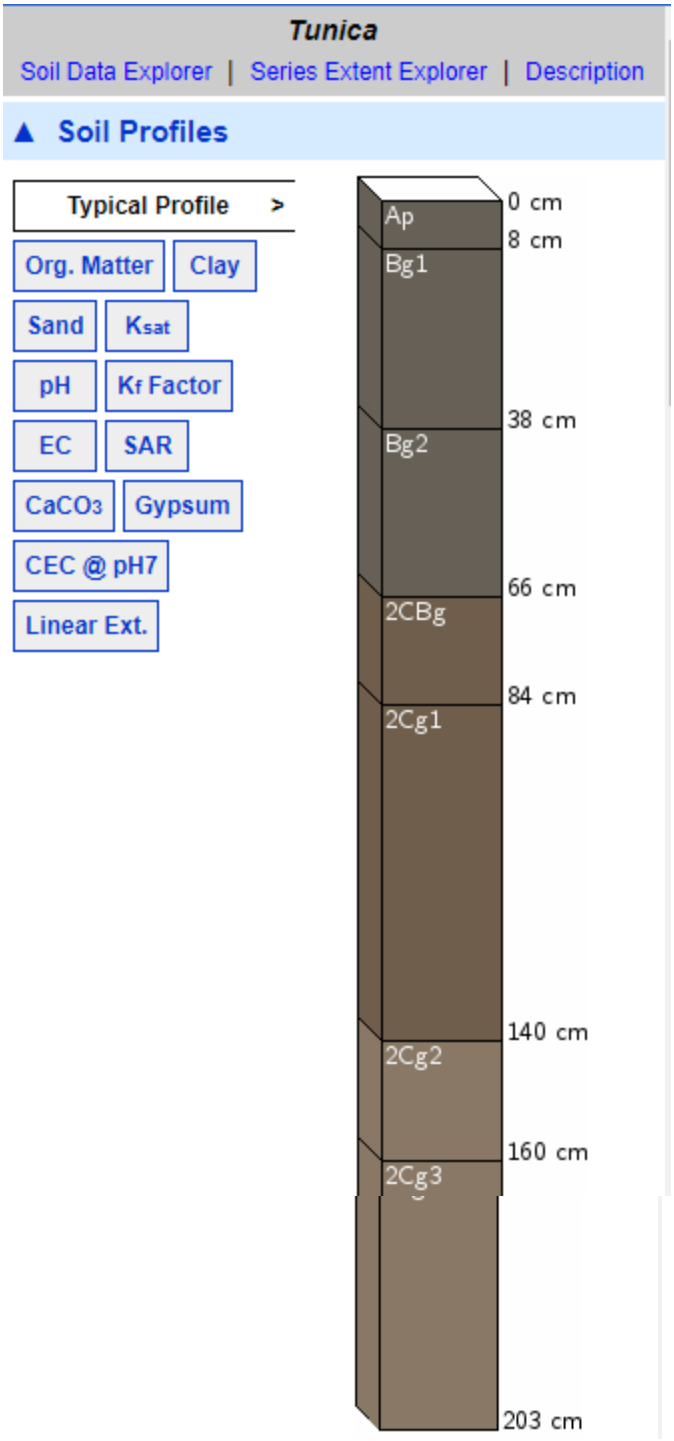
▲ Survey Metadata

Soil Survey Area: *LA065* ?

Scale: *1:24,000* ?

Published: *1972* ?

Last Export: *Oct 4 2017* ?


Tunica
Soil Data Explorer | Series Extent Explorer | Description
Soil Profiles
Typical Profile >
Org. Matter
Clay
Sand
Ksat
pH
Kf Factor
EC
SAR
CaCO3
Gypsum
CEC @ pH7
Linear Ext.
Ap
Bg1
Bg2
2CBg
2Cg1
2Cg2
2Cg3
0 cm
8 cm
38 cm
66 cm
84 cm
140 cm
160 cm
203 cm

Typical Profile

Org. Matter ? >

Clay | Sand

Ksat | pH

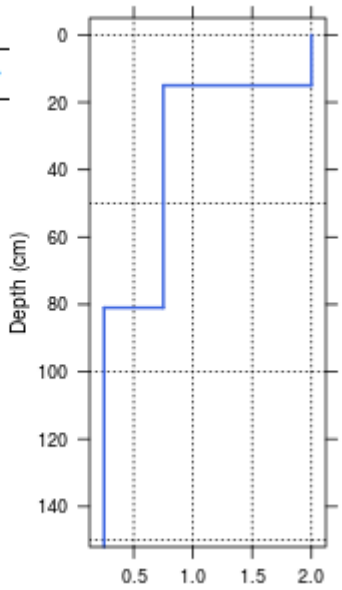
Kf Factor | EC

SAR | $CaCO_3$

Gypsum

CEC @ pH7

Linear Ext.



Depth Range (cm)	Horizon Designation	Percent Clay	Percent Sand	Percent Organic Matter	pH by water Extraction
0 - 15	*Ap*	*56*	*9.5*	*2*	*6*
15 - 81	*Bg*	*55*	*7*	*0.75*	*6.9*
81 - 152	*2Cg*	*7*	*41*	*0.25*	*7.3*

All Horizon Data

Sat. Hydraulic Conductivity (mm/hr)	EC (dS/m)	SAR (%)	Carbonates (% of < 2 mm)	Gypsum (% of < 20 mm)	CEC at pH 7 (cmol charge / kg soil)	K Factor	LEP	Oven-Dry D_b (g/cm^3)
0.756	*0*	*0*	*0*	*0*	*41.1*	*.24*	*11.6*	*1.76*
0.756	*0*	*0*	*0*	*0*	*39.2*	*.28*	*9.3*	*1.75*
32.4	*0*	*0*	*0*	*0*	*6.4*	*.55*	*0.6*	*1.5*

▲ Soil Taxonomy

Order: *Inceptisols*

Suborder: *Aquepts* *Map of Suborders*

Greatgroup: *Epiaquepts*

Subgroup: *Vertic Epiaquepts*

Family: *Clayey over loamy, smectitic over mixed, superactive, nonacid, thermic Vertic Epiaquepts*

Soil Series: *Tunica*

▲ Land Classification

CA Storie Index: *n/a*

Land Capability Class (non-irrigated): *3-w*

Land Capability Class (irrigated): -

Ecological Site Description: *n/a*

Forage Suitability Group: *n/a*

▲ Hydraulic and Erosion Ratings

Wind Erodibility Group: *4*

Wind Erodibility Index: *86*

T Erosion Factor: *5*

Runoff: *High*

Drainage: *Poorly drained*

Hydric Rating: *No*

Hydrologic Group: *Group D*

Parent Material: *clayey alluvium over loamy alluvium*

Total Plant Available Water (cm): *27.77*

▲ Forest Productivity

Common name (*Scientific name*) Site Index – Site Index Curve Number	Productivity (cu.ft./ac./yr.)
green ash *(Fraxinus pennsylvanica)* 100 – Broadfoot 1969 (332)	57
sweetgum *(Liquidambar styraciflua)* 90 – Broadfoot, Krinard 1959 (330)	100
eastern cottonwood *(Populus deltoides)* 105 – Broadfoot 1960 (710)	143
cherrybark oak *(Quercus pagoda)* 90 – Broadfoot 1961 (840)	114
Nuttall oak *(Quercus texana)* 105 – Broadfoot 1963 (860)	143

▲ Soil Suitability Ratings

Agriculture Ratings

Pesticide Loss Potential-Leaching -- Very limited
Pesticide Loss Potential-Soil Surface Runoff -- Not limited

Forestry Ratings

Potential Fire Damage Hazard -- Low
Potential Seedling Mortality -- High
Potential Erosion Hazard (Off-Road/Off-Trail) -- Slight
Soil Rutting Hazard -- Severe
Road Suitability (Natural Surface) -- Poorly suited
Potential Erosion Hazard (Road/Trail) -- Slight
Log Landing Suitability -- Poorly suited
Construction Limitations for Haul Roads/Log Landings -- Moderate
Harvest Equipment Operability -- Moderately suited
Mechanical Site Preparation (Surface) -- Poorly suited
Mechanical Site Preparation (Deep) -- Well suited
Mechanical Planting Suitability -- Poorly suited
Hand Planting Suitability -- Poorly suited

Waste Related Ratings

Manure and Food Processing Waste -- Very limited
Land Application of Municipal Sewage Sludge -- Very limited
Rapid Infiltration Disposal of Wastewater -- Very limited
Irrigation Disposal of Wastewater -- Very limited
Slow Rate Process Treatment of Wastewater -- Very limited
Overland Flow Process Treatment of Wastewater -- Very limited

Urban / Recreational Ratings

Off-Road Motorcycle Trails -- Very limited
Camp Areas -- Very limited
Picnic Areas -- Very limited
Paths and Trails -- Very limited
Playgrounds -- Very limited

Wildlife Ratings

Crawfish Aquaculture (TX) -- Not limited
Chufa for Turkey Forage (LA) -- Very poorly suited
Gopher Tortoise Burrowing Suitability -- Unsuitable

Engineering Ratings

Construction Materials; Roadfill -- Poor
Construction Materials; Gravel Source -- Poor
Construction Materials; Sand Source -- Poor
Construction Materials; Topsoil -- Poor
Construction Materials; Reclamation -- Poor
Septic Tank Absorption Fields -- Very limited
Unpaved Local Roads and Streets -- Very limited
Shallow Excavations -- Very limited
Dwellings W/O Basements -- Very limited
Dwellings With Basements -- Very limited
Small Commercial Buildings -- Very limited
Local Roads and Streets -- Very limited
Lawn, Landscape, Golf Fairway -- Very limited
Sanitary Landfill (Trench) -- Very limited
Sewage Lagoons -- Very limited
Sanitary Landfill (Area) -- Very limited
Daily Cover for Landfill -- Very limited

Irrigation Ratings

Excavated Ponds (Aquifer-fed) -- Very limited
Embankments, Dikes, and Levees -- Very limited
Irrigation, Surface (level) -- Very limited
Irrigation, Surface (graded) -- Very limited
Irrigation, Micro (above ground) -- Very limited
Irrigation, Sprinkler (close spaced outlet drops) -- Very limited
Irrigation, Sprinkler (general) -- Very limited
Irrigation, General -- Very limited
Subsurface Water Management, System Performance -- Very limited
Subsurface Water Management, System Installation -- Somewhat limited
Subsurface Water Management, Outflow Quality -- Very limited
Surface Water Management, System -- Somewhat limited
Irrigation, Micro (subsurface drip) -- Very limited
Pond Reservoir Area -- Somewhat limited

DHS Ratings

Rubble and Debris Disposal, Large-Scale Event -- Severely limited
Suitability for Clay Liner Material -- Poor
Site for Composting Facility -- Very limited
Site for Composting Facility -- Very limited
Suitability for Composting Medium and Final Cover -- Poor
Potential for Radioactive Sequestration -- High sequestration potential
Potential for Radioactive Bioaccumulation -- Very low bioaccumulation potential
Catastrophic Mortality, Large Animal Disposal, Pit -- Very limited
Catastrophic Mortality, Large Animal Disposal, Trench -- Very limited

SOIL SURVEY OF MADISON PARISH, LOUISIANA

BY TRACEY A. WEEMS, EMMETT F. REYNOLDS, RONNIE L. VENSON,
E. THURMAN ALLEN, AND TERRY J. SMITH, SOIL CONSERVATION SERVICE

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

MADISON PARISH is in the northeastern part of Louisiana (fig. 1). Tallulah is the parish seat. The parish has a total area of 423,680 acres, of which 12,160 acres is lakes, bayous, and rivers. Elevation ranges from about 60 to 90 feet above sea level.

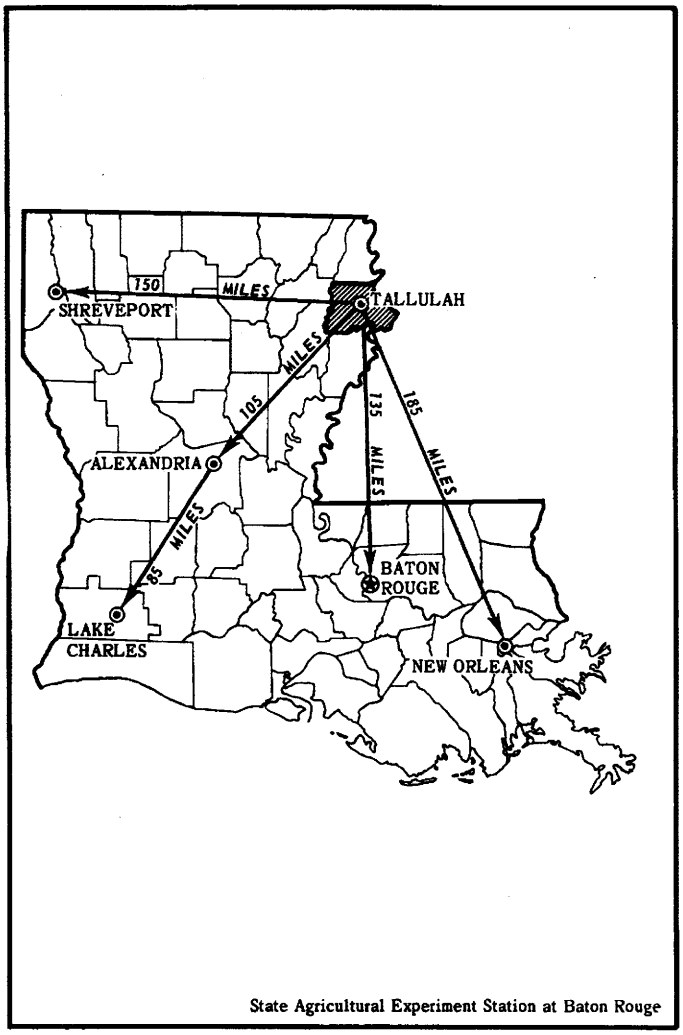


Figure 1.—**Location of Madison Parish in Louisiana.**

The climate of the parish is warm and temperate. Summers are hot and humid. Winters are mild.

All of the soils in the parish are on the alluvial plain of the Mississippi River. They formed in alluvium deposited by the river and range from fine sand to clay in texture. About 65 percent of the acreage is clayey soils. The soils range from level to gently undulating and are in a ridge and swale pattern. Most of the parish is nearly level. A manmade levee system along the Mississippi River protects most of the area from flooding, but most of the soils between the levee and the river are frequently flooded (fig. 2).

The parish is drained by Bayou Macon, Joes Bayou, the Tensas River, and many smaller streams. Drainage is dominantly from north to south. Most of the clayey soils are poorly drained. The loamy soils are somewhat poorly drained and moderately well drained. The sandy soils are excessively drained. Most of these soils are high in natural fertility and are well suited to crops, pasture, and hardwood trees.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in Madison Parish, where they are located, and how they can be used. The soil scientists went into the parish 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 parishes 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

Figure 2.—Cattle grazing on manmade levee and berm of the Mississippi River.

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. Bruin and Sharkey, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

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

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

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

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

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

on the same kind of soil. Yields under defined management are estimated for all the soils.

Soil scientists observe how soils behave when used as a growing place for native and cultivated plants, and as material for structures, foundations for structures, or covering for structures. They relate this behavior to properties of the soils. For example, they observe that filter fields for onsite disposal of sewage fail on a given kind of soil, and they relate this to the slow permeability of the soil or its 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 the survey area.[1] A soil association is a landscape that has a distinctive pattern of soils in defined proportions. It typically consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in an association can occur in other associations, but in different patterns.

A map showing soil associations is useful to people who want to have a general idea of the soils in a survey area, who want to compare different parts of that area, or who want to locate large tracts that are suitable for a certain kind of land use. Such a map is a useful general guide for broad planning on a watershed, a wooded tract, or a wildlife area or for broad planning of recreational facilities, community developments and such engineering works as transportation corridors. It is not a suitable map for detailed planning for management of a farm or field or for selecting the exact location of a road or building or other structure, because the soils within an association ordinarily vary in slope, drainage, and other characteristics that affect their management.[2]

The soil associations in this survey area (fig. 3) have been grouped into general kinds of landscapes for broad interpretative purposes. Each of the broad groups and the soil associations in it are described on the following pages.

Loamy and clayey soils on natural levees

Two soil associations consist of nearly level loamy and clayey soils on the natural levees of the Mississippi River and its distributaries. These soils formed in alluvium deposited by the Mississippi River. Slopes range from 0 to 3 percent but are dominantly less than 1 percent. The nearly level loamy soils are at the highest elevations along the Mississippi River levee and along Joes Bayou. The natural levees slope away from the stream channels. The nearly level clayey soils are on the lower elevations of the natural levees of Joes Bayou and are at the greatest distance from the stream channel. These associations make up 20 percent of the parish.

1. Commerce-Bruin association

Nearly level, somewhat poorly drained and moderately well drained, loamy soils

This association consists of loamy soils on the natural levees of the Mississippi River, Walnut Bayou, Roundaway Bayou, Bayou Bidal, and Eagle Lake. Slopes are 0 to 3 percent. Elevation ranges from 80 to 95 feet above sea level.

This association makes up about 11 percent of the parish. It is about 76 percent Commerce soils and 14 percent Bruin soils. Sharkey and Tunica soils make up most of the remaining 10 percent of this association.

Commerce soils are on the higher parts of the natural levees. They have a surface layer of dark grayish-brown silt loam. The subsoil is dark grayish-brown silty clay loam in the upper 9 inches and grayish-brown and dark grayish-brown silt loam below. Runoff is medium to slow, and permeability is moderately slow. These soils are somewhat poorly drained.

Bruin soils are on the highest part of the natural levees. They have a surface layer of dark grayish-brown and dark-brown silt loam. The subsoil is brown and dark-brown silt loam that is mottled with shades of brown. Runoff is medium, and permeability is moderate. These soils are moderately well drained.

Minor in this association are small areas of Sharkey and Tunica soils. These clayey, poorly drained soils are on the lower parts of the natural levees.

Most areas of this association are used for crops and pasture. A small acreage is used as sites for homes and light industry. The soils of this association are well suited to crops and pasture because of their loamy texture, high natural fertility, and nearly level slopes. They are limited for some uses by wetness and low strength. Most of the farms in this association are 100 to 1,000 acres in size and are operated by the owner.

2. Dundee-Sharkey association

Nearly level, somewhat poorly drained, loamy soils and poorly drained, clayey soils

This association consists of loamy and clayey soils on the natural levees of the Joes Bayou, Bayou Macon, and Spring Bayou. Slopes are 0 to 1 percent. Elevation dominantly ranges from 70 to 80 feet above sea level.

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[1] About 7,400 acres of Warren County, Mississippi, is included on this map.

[2] Madison Parish joins Tensas Parish on the south. Slight differences occur in the components of associations joined on the general soil maps of these two parishes. These differences are mainly a result of the design of the surveys and recent changes in soil taxonomy.

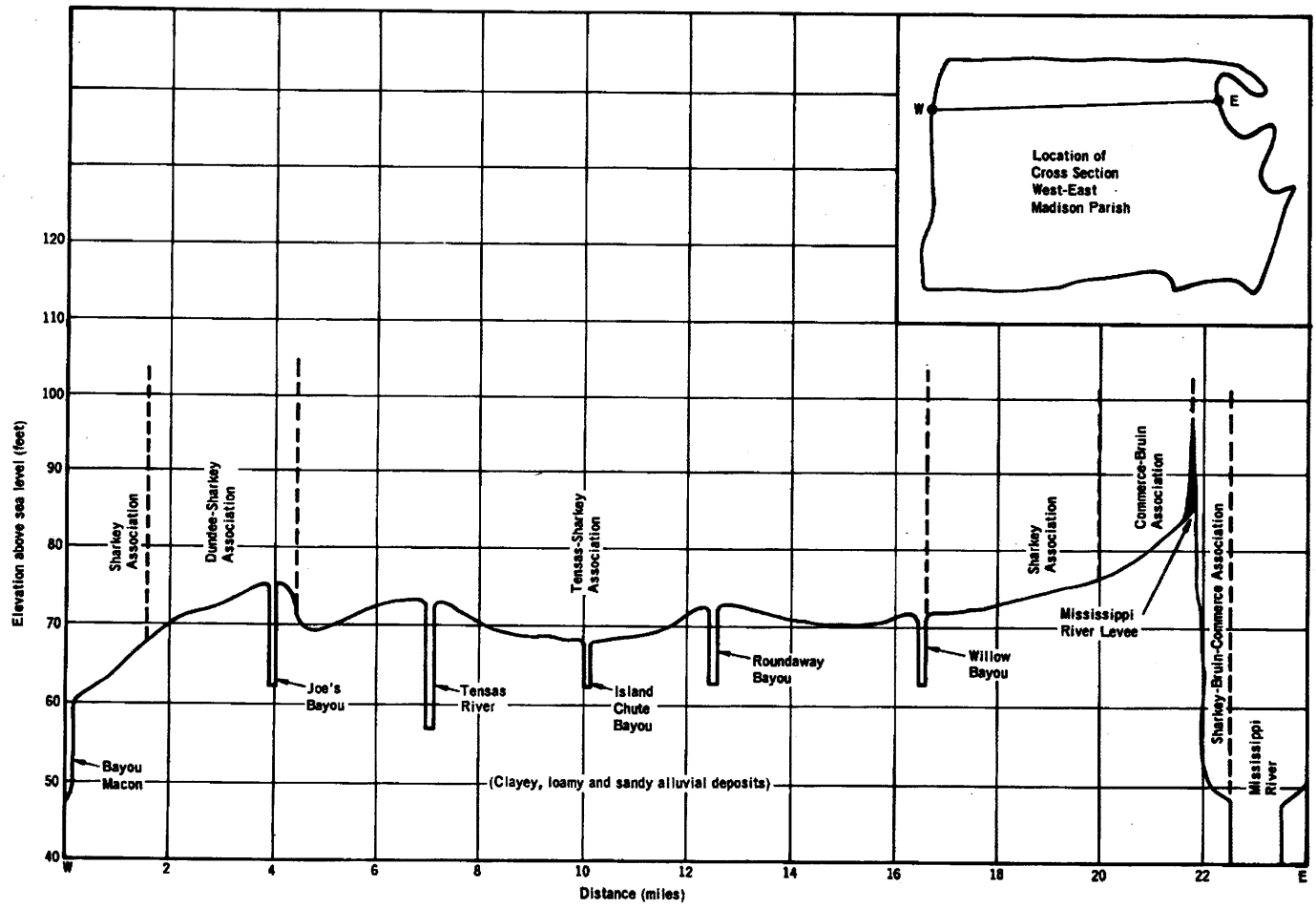

Figure 3.—**Relationship of soil associations to elevation.**

This association makes up about 9 percent of the parish. It is 76 percent Dundee soils and 14 percent Sharkey soils. Tensas soils, Tunica soils, and Udifluvents make up most of the remaining 10 percent of this association.

Dundee soils are on the higher elevations of the natural levees. They have a surface layer of dark-brown silt loam. The subsoil is grayish-brown silty clay loam in the upper 5 inches and grayish-brown loam below. It is mottled in shades of brown. Runoff is slow, and permeability is moderately slow. These soils have moderate natural fertility.

Sharkey soils are on the lower elevations of the natural levees, in nearly level areas, and in slight depressions. They have a surface layer of dark grayish-brown clay and a subsoil of dark-gray clay mottled in shades of brown. Runoff is slow or very slow, and permeability is very slow. These soils have high natural fertility.

Minor in this association are Udifluvents and Tensas and Tunica soils. The Tensas and Tunica soils are on the lower parts of natural levees. The Udifluvents are on spoil banks from dredged channels.

Most areas of this association are used for crops and pasture. A small acreage is used as woodland. The soils of this association are well suited to the crops commonly grown in this area. They are also well suited to use as woodland. The Sharkey soils are limited for most other uses by wetness, low strength, and very high shrink-swell potential.

Clayey soils on broad flats, on ridges, and in swales

Two soil associations consist of level, nearly level, and gently undulating clayey soils on broad flats, on ridges, and in swales. The level and nearly level soils are at low elevations. A few small areas of these soils are subject to flooding. The ridges and swales are mainly adjacent to the Tensas River and are at higher elevations than the level areas. These soils formed in alluvium deposited by the Mississippi River. Slopes range from 0 to 3 percent. These associations make up 73 percent of the parish.

3. Sharkey association

Level, nearly level and gently undulating, poorly drained, clayey soils

This association consists of clayey soils on broad flats, on ridges, and in swales and narrow depressions. Slopes are 0 to 3 percent. Elevation ranges from 75 to 80 feet above sea level.

This association makes up about 55 percent of the parish. It is 91 percent Sharkey soils. Tunica, Commerce, Dundee, and Tensas soils make up the remaining 9 percent of this association.

Sharkey soils are on broad flats, on ridges, and in swales and depressions. They have a surface layer of dark grayish-brown clay. The subsoil is dark-gray clay mottled in shades of brown. These soils are poorly drained and very slowly permeable. They crack when dry, and they swell and seal over when wet.

Commerce, Dundee, and Tensas soils are minor in this association. Tensas soils are on low ridges and in swales. Commerce, Dundee, and Tensas soils are on natural levees.

Most areas of this association are used for woodland. A small acreage is used for crops and pasture. Farms are mostly 200 to 1,500 acres in size and are operated by the owner. The soils in this association are suited to most crops grown in the area. They are high in natural fertility.

This association is limited for most uses by wetness, a very high shrink-swell potential, and low strength.

4. Tensas-Sharkey association

Gently undulating and level, somewhat poorly drained, and poorly drained clayey soils

This association consists of clayey soils on lower parts of natural levees, on broad flats, on ridges, and in swales. Most of the association is on ridges and in swales. Slopes are 0 to 3 percent. Elevation ranges from 60 to 80 feet above sea level.

This association makes up about 18 percent of the parish. It is 60 percent Tensas soils and 37 percent Sharkey soils. Dundee and Tunica soils make up the remaining 3 percent of the association.

Tensas soils are on ridges and lower parts of natural levees. They have a surface layer of dark grayish-brown silty clay. The subsoil is grayish-brown silty clay to a depth of about 22 inches, and it is grayish-brown silty clay loam below. Runoff is medium on the ridges and is slow on the natural levees.

Sharkey soils are in the swales and on broad flats. They have a surface layer of dark grayish-brown clay. The subsoil is dark-gray clay mottled in shades of brown. Runoff is slow, and permeability is very slow.

Dundee and Tunica soils are minor in this association. Dundee soils are on the higher parts of the natural levees.

About 60 percent of this association is used for crops. The remaining 40 percent is used for woodland. Farms are large and are operated by the owners.

The soils of this association are suited to most cultivated crops commonly grown in the area. They are well suited to woodland.

This association is limited for most uses by wetness, low strength, high shrink-swell potential, and uneven surfaces.

Clayey, loamy, and sandy, frequently flooded and occasionally flooded soils mainly between the Mississippi River and its levee

Two associations consist of level to gently undulating soils on recent natural levees of the Mississippi River and in low areas away from the river. The clayey soils are at the greatest distance from the river and are in the low areas. The loamy soils are on the higher part of the natural levees. The sandy soils occur on sand bars and on the highest parts of natural levees adjacent to the Mississippi River. Slopes range from 0 to 3 percent but are dominantly less than 1 percent. These associations make up 7 percent of the parish.

5. Sharkey-Bruin-Commerce association

Level, nearly level and gently undulating, poorly drained, clayey soils and moderately well drained and somewhat poorly drained, loamy soils that are frequently flooded

The soils of this association are between the Mississippi River and its manmade levee and on the island east of the Mississippi River. They are subject to deposition or loss of soil material by scouring during floods. Slopes are 0 to 5 percent. Elevation ranges from 65 to 95 feet above sea level.

This association makes up about 6 percent of the parish. In addition, about 7,400 acres located in Warren County, Mississippi, is in this association. This association is 40 percent Sharkey soils, 29 percent Bruin soils, and 19 percent Commerce soils. Tunica soils make up most of the remaining 12 percent of the association.

Sharkey soils are in low areas at the lowest elevations in the association. They have a surface layer of dark grayish-brown clay. The subsoil is dark-gray clay mottled in shades of brown. Runoff is very slow or ponded. Permeability is very slow. These soils are wet and are poorly drained.

Bruin soils are on the higher parts of the natural levees. They have a surface layer of dark-brown silt loam. The subsoil is dark-brown silt loam mottled in shades of brown. Runoff is medium. Permeability is moderate. These soils are moderately well drained.

Commerce soils are on higher parts of natural levees. They have a surface layer of dark grayish-brown silt loam. The subsoil is dark grayish-brown silty clay loam in the upper part and grayish-brown silt loam mottled in shades of brown in the lower part. Runoff is medium to slow. These soils are somewhat poorly drained.

The poorly drained Tunica soils are minor in this association. They are closely associated with the Sharkey soils. These soils are clayey in the upper 25 inches and loamy below.

Most areas of this association are used for woodland. Cleared areas are used mainly for pasture and hay. Some areas of the Bruin and Commerce soils that have low-quality woodland are being cleared and planted to more profitable trees.

The soils of this association are well suited to woodland. Bruin, Commerce, Sharkey, and Tunica soils are suited to crops commonly grown in the parish, but frequent flooding makes production uncertain.

The Sharkey and Commerce soils are limited for most uses by wetness and the hazard of flooding. Sharkey soils are also limited by low strength and very high shrink-swell potential.

6. Crevasse-Udipsamments association

Nearly level and gently sloping, excessively drained, frequently flooded and occasionally flooded, sandy soils

This association consists of sandy soils between the Mississippi River and its manmade levee. Slopes range from 0 to 5 percent. Elevation ranges from 80 to 100 feet above sea level.

This association makes up less than 1 percent of the parish. It is 50 percent Crevasse soils and 46 percent Udipsamments. Commerce, Bruin, and Sharkey soils make up most of the remaining 4 percent of the association.

Crevasse soils are on recent natural levees and sand bars that border the Mississippi River or its former channels. They have a surface layer of brown fine sand. The subsoil is grayish-brown, dark-brown, and brown fine sand. Runoff is very slow. Permeability is rapid. These soils are excessively drained and are frequently flooded.

Udipsamments occupy the highest elevations. They have a surface layer of dark yellowish-brown loamy sand. The subsoil is brown fine sand and sand mottled in shades of brown. Runoff is very slow. Permeability is rapid. Most areas of these soils are occasionally flooded, but some small areas are rarely flooded.

Commerce, Bruin, and Sharkey soils are minor in this association. Commerce and Bruin soils are at intermediate elevations on the natural levees. Sharkey soils are in low areas.

Crevasse soils are mainly in pasture and woodland. Udipsamments are in areas that are suitable for grass in spring, but these areas are commonly barren during the rest of the year. Crevasse soils and Udipsamments are not commonly suited to cultivated crops, because of their droughtiness and the hazard of flooding. The sandy surfaces of these soils do not provide good traction for farm equipment during dry periods.

Most areas of this association are managed to provide suitable wildlife habitat.

Descriptions of the soils

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

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

As mentioned in the section "How This Survey Was Made," not all mapping units are members of a soil series. Udifluvents, for example, do not belong to a soil series, but nevertheless, are listed in alphabetic order along with the soil series.

Preceding the name of each mapping unit is a symbol. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of each description of a mapping unit is the capability unit and woodland group in which the mapping unit has been placed.

The acreage and proportionate extent of each mapping unit are shown in table 1. Many of the terms used in describing soils can be found in the Glossary, and more detailed information about the terminology

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

Mapping unit	Area	Extent
	Acres	*Percent*
Bruin silt loam	6,435	1.5
Bruin and Commerce soils, frequently flooded	11,175	2.6
Commerce silt loam	21,313	5.0
Commerce silty clay loam	11,498	2.7
Commerce silty clay loam, gently undulating	2,439	.6
Crevasse soils, frequently flooded	1,386	.3
Dundee silt loam	7,432	1.8
Dundee silty clay loam	15,664	3.7
Dundee-Sharkey complex, gently undulating	11,448	2.7
Sharkey silt loam	1,165	.3
Sharkey silty clay loam	5,388	1.3
Sharkey clay	179,340	42.2
Sharkey clay, undulating	1,652	.4
Sharkey clay, frequently flooded	5,254	1.2
Sharkey soils, frequently flooded	2,117	.5
Sharkey-Tunica complex, gently undulating	27,064	6.4
Sharkey and Tunica soils, frequently flooded	9,382	2.2
Tensas silty clay	12,327	3.0
Tensas-Sharkey complex, gently undulating	62,147	14.7
Tunica clay	12,447	3.0
Udifluvents	610	.1
Udipsamments	1,293	.3
Water	14,704	3.5
Total area	423,680	100.0

cannot be shown separately at the scale used in mapping.

Included with these soils in mapping are small areas of Tensas soils on the ridges and Tunica soils in the swales and on the lower slopes.

Most areas of these soils are used for woodland. A small acreage is used for crops and pasture. Suitable crops are cotton, soybeans, wheat, and oats. Suitable pasture plants are common bermudagrass, dallisgrass, Pensacola bahiagrass, white clover, tall fescue, and ryegrass. Drainage is necessary if the swales are used for crops and pasture. Management is somewhat difficult because of short, irregular slopes and wetness in the swales, which delays planting and cultivation. Smoothing and leveling of land improve drainage and increase efficiency of farm equipment. Erosion is a hazard on the ridges. Most crops respond well to fertilizer. Lime is generally needed on the Dundee soils. Capability unit IIIw–6; Dundee soils in woodland suitability group 2w5, and Sharkey soils in woodland suitability group 2w6.

Sharkey series

The Sharkey series consists of poorly drained, very slowly permeable soils that have a clayey or loamy surface layer and a clayey subsoil. These soils formed in clayey slack-water deposits on broad flats and on the lower part of natural levees.

In a representative profile the surface layer is dark grayish-brown clay about 6 inches thick. The subsoil extends to a depth of about 40 inches. It is dark-gray clay mottled in shades of brown. The underlying material is gray clay.

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

Representative profile of Sharkey clay, in a field, 1.5 miles north of Tallulah, 17 feet west of power pole, 342 feet northeast of field road, 1 mile south of road to Deltic headquarters, NW¼NE¼ sec. 44, T. 17 N., R. 13 E.:

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) clay; common, fine, faint, dark-gray mottles; massive; firm; mildly alkaline; abrupt, smooth boundary.

B21g—6 to 17 inches, dark-gray (10YR 4/1) clay; common, fine, faint, dark yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; pressure faces and slickensides on most peds; moderately alkaline; clear, smooth boundary.

B22g—17 to 25 inches, dark-gray (10YR 4/1) clay; common, medium, faint, dark yellowish-brown (10YR 4/4) and few, fine, faint, yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; pressure faces apparent but not on every ped; moderately alkaline; clear, smooth boundary.

B3g—25 to 40 inches, dark-gray (10YR 4/1) clay; many, medium, faint, dark yellowish-brown (10YR 4/4) mottles; weak, coarse, subangular blocky structure; firm; slickensides about 3 inches wide with 45 degree angle; moderately alkaline; clear, smooth boundary.

C1g—40 to 49 inches, gray (10YR 5/1) clay; common, medium, faint, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; some coarse, subangular blocky peds; firm; moderately alkaline; clear, smooth boundary.

C2g—49 to 83 inches, gray (10YR 5/1) clay; common, medium, faint, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm; few, soft, black concretions; moderately alkaline.

The A horizon ranges from 4 to 10 inches in thickness. It is dark grayish brown, dark gray, or very dark grayish brown and is mottled in shades of brown. It is silty clay loam or silt loam in texture and is medium acid to moderately alkaline in reaction. The B horizon is dark-gray or gray clay that averages more than 60 percent clay content. It is mottled in shades of brown. It is medium acid to moderately alkaline between depths of 10 and 20 inches and is slightly acid to moderately alkaline below. The C horizon is dark-gray, gray, or olive-gray clay and is mottled in shades of brown. Some profiles have loamy material below a depth of 36 inches. The C horizon is slightly acid to moderately alkaline in reaction.

In the Sharkey soils, frequently flooded, strata are present that have a chroma of 2. These browner colors are outside the range defined for the Sharkey series, but this difference does not alter use or management of the soils.

Sharkey soils are associated with Bruin, Commerce, Dundee, Tensas, and Tunica soils. Sharkey soils have finer textured B and C horizons and are more poorly drained than Bruin, Commerce, and Dundee soils. They are more poorly drained and more alkaline than Tensas soils and lack the loamy B and C horizons that are typical of those soils. Sharkey soils lack the loamy C horizon that is typical of the Tunica soils.

Sa—Sharkey silt loam. This poorly drained soil is on the lower parts of natural levees. Areas range from about 10 to 300 acres in size. Slopes are less than 1 percent.

This soil has a profile similar to the one described as representative of the series, but the surface layer is silt loam about 8 inches thick. This soil is high in natural fertility. Runoff is slow. Permeability is very slow. Wetness causes poor aeration and restricts root development. A seasonally high water table is at a depth of 2 feet during the months of December through April. The surface layer is friable, is easy to cultivate, and dries out fairly soon under favorable moisture conditions. The clayey subsoil is difficult to use as construction material because it is sticky when wet and hard when dry. This soil cracks when dry, but the cracks are not so wide at the surface as those in the Sharkey clay. The cracks seal over when wet. Wetness, low strength, and the very high shrink-swell potential of the subsoil are the main limitations for most uses.

Included with this soil in mapping are small areas of Commerce silt loam and Sharkey silty clay loam.

Most areas of this soil are used for crops and pasture. Suitable crops are cotton, corn, soybeans, grain sorghum, oats, wheat, and rice. Suitable pasture plants are common bermudagrass, Coastal bermudagrass, dallisgrass, Pensacola bahiagrass, ryegrass, white clover, and tall fescue. A surface drainage system is needed for cultivated crops and pasture plants. Smoothing and leveling of land improve drainage and increase efficiency of farm equipment. Most crops respond well to nitrogen fertilizer. Capability unit IIIw–3; woodland suitability group 2w6.

Sb—Sharkey silty clay loam. This poorly drained soil is on the lower parts of natural levees. It has a loamy surface layer and a clayey subsoil. Areas range from about 10 to 700 acres in size, but most areas are more than 40 acres. Slopes are less than 1 percent.

This soil has a profile similar to the one described as representative of the series, but the surface layer is silty clay loam about 9 inches thick. The subsoil is clayey throughout. This soil is high in natural fertility. Runoff is slow. Permeability is very slow. Wetness of the subsoil causes poor aeration and restricts root development. The surface cracks when dry and swells and seals over when wet. A seasonally high water table is at a depth of 0 to 2 feet during the months of December through April. Wetness, low strength, and a very high shrink-swell potential are limitations for most uses.

Included with this soil in mapping are small areas of Commerce silty clay loam, Sharkey clay, and Tunica soils.

Most areas of this soil are used for crops and pasture. A small acreage is used for woodland. Suitable crops are cotton, corn, soybeans, grain sorghum, oats, wheat, and rice. Suitable pasture plants are common bermudagrass, Coastal bermudagrass, dallisgrass, Pensacola bahiagrass, ryegrass, white clover, and tall fescue. A surface drainage system is needed for cultivated crops and pasture. Smoothing and leveling of land improve drainage and increase efficiency of farm equipment. This soil is fairly easy to work, but it needs to be worked under favorable moisture conditions to prevent clodding. Most crops respond well to nitrogen fertilizer. Capability unit IIIw–3; woodland suitability group 2w6.

Sc—Sharkey clay. This soil is on lower parts of natural levees, on broad flats, and in depressions. It is poorly drained and is clayey throughout. Areas range from about 20 to 2,800 acres in size, but most areas are more than 200 acres (fig. 10). Slopes are 0 to 1 percent.

This soil has the profile described as representative of the series. It is high in natural fertility. Runoff is slow. Permeability is very slow. A seasonally high water table is at a depth of 0 to 2 feet during the months of December through April. Wetness causes poor aeration and restricts plant root development. This soil cracks when dry and seals over when wet. This soil is sticky when wet and hard when dry, and it is difficult to work. Wetness, low strength, and a very high shrink-swell potential are the main limitations for most uses.

Included with this soil in mapping are small areas of Sharkey silty clay loam and silt loam, small areas of Tensas and Tunica soils, and a few, small, low areas of soils that are subject to flooding.

Most areas of this soil are used for woodland. A fairly large acreage is used for crops, and a small

Figure 10.—Typical area of Sharkey clay that has recently been cleared.

acreage is used for pasture. Suitable crops are cotton, soybeans, grain sorghum, oats, wheat, and rice (fig. 11). Corn is not well suited. Suitable pasture plants are common bermudagrass, Coastal bermudagrass, dallisgrass, ryegrass, white clover, and tall fescue. Adequate stands of Coastal bermudagrass are somewhat difficult to establish. Cultivation and harvesting are sometimes delayed because of wetness. This soil can only be worked within a narrow range of moisture content. In some years plants may suffer from a lack of moisture during dry periods. Most crops respond well to nitrogen fertilizer. Surface drainage is needed for crops and pasture. Smoothing and leveling of land improve drainage and increase efficiency of farm equipment. Capability unit IIIw–1; woodland suitability group 2w6.

Sd—Sharkey clay, undulating. This poorly drained soil is in long and narrow areas in the western part of the parish. Most areas are adjacent to narrow drainageways, but some areas are on ridges and in swales. In places the soil is in a repeating pattern of ridges and swales. The swales have gentle slopes on each side. A drainage ditch is generally in the swales. This soil is clayey throughout. Areas range from 10 to 200 acres in size, but most areas are less than 100 acres. Slopes are 0 to 5 percent.

This soil has the profile similar to the one described as representative of the series. It is high in natural fertility. Runoff is medium on the slopes and very slow in the depressional areas. Permeability is very slow. Wetness causes poor aeration and restricts plant root development. This soil is sticky when wet and is hard when dry. It can be worked only over a narrow range of moisture content. A seasonally high water table is at a depth of 0 to 2 feet during the months of December through April. Wetness, low strength, a very high shrink-swell potential, and short irregular slopes are the main limitations for most uses.

Figure 11.—Harvesting soybeans on Sharkey clay.

Included with this soil in mapping are small areas of Dundee, Tensas, and Tunica soils.

Most areas of this soil are used for crops and pasture. A small acreage is used for woodland. Suitable crops are cotton, soybeans, wheat, and oats. Suitable pasture plants are common bermudagrass, Coastal bermudagrass, tall fescue, Pensacola bahiagrass, white clover, and ryegrass. Adequate stands of Coastal bermudagrass are somewhat difficult to establish. In some years plants may suffer from lack of moisture during dry periods. Good tilth is difficult to maintain. This soil can only be worked within a narrow range of moisture content. The drainage ditches in some swales limit the use of farm equipment. Most crops respond well to nitrogen fertilizer. Surface drainage is needed for crops and pasture. Smoothing and leveling of land improve drainage and increase efficiency of farm equipment. Capability unit IIIw–4; woodland suitability group 2w6.

Sf—Sharkey clay, frequently flooded. This poorly drained clayey soil is in depressional areas throughout the parish. These areas range from one-eighth to one-half of a mile in width and from 200 to 500 acres in size. Slopes are less than 1 percent.

This soil has a profile similar to the one described as representative of the series, but the material below the subsoil is dark gray. It is high in natural fertility. Runoff is very slow. This soil is ponded during winter and spring. Permeability is very slow. The soil is hard when dry and sticky when wet, and it is difficult to work. The soil is frequently flooded by 6 inches to 4 feet or more of water, mostly during winter and early in spring. It is occasionally flooded in summer and early in spring, but it is wet throughout most of the year. When the soil is not flooded, the water table is mainly at a depth of 0 to 3 feet. Flooding, wetness, low strength, and a very high shrink-swell potential are the main limitations for most uses.

Included with this soil in mapping are small areas of Tensas and Tunica soils. Small areas of soils that are not subject to flooding are also included.

Most areas of this soil are used for woodland. Flooding precludes its use for cultivated crops and pasture. Flooding and wetness severely restrict grazing. Common bermudagrass is a suitable pasture plant. Capability unit Vw–1, woodland suitability group 3w6.

SS—Sharkey soils, frequently flooded. These poorly drained soils are in some of the borrow pits from which the soil material has been removed to construct the Mississippi River levee. They are between the Mississippi River and its manmade levee. Areas range from about 10 to 200 acres in size. Slopes are 0 to 2 percent. The composition of this mapping unit is generally more variable than that of the other units in the survey area. Mapping has been controlled well enough, however, to make interpretations for the anticipated uses of the soils.

These soils have profiles similar to the one described as representative of the series, but their surface layer is silty clay loam, clay, or silt loam. These soils are high in natural fertility. Runoff is very slow. Permeability is very slow. These soils are frequently flooded with as much as 3 feet of water, mostly in winter and spring. When these soils are not flooded, the water table is mainly at a depth of 0 to 3 feet. Flooding, wetness, low

strength, and a very high shrink-swell potential are the main limitations for most uses.

Included with these soils in mapping are small areas of Commerce and Tunica soils. Some small areas of soils that are not subject to flooding are also included. Borrow pits that contain water throughout the year and do not produce vegetation were mapped as water.

Most areas of these soils are used for woodland and pasture. A lack of suitable outlets limits improvement of drainage. Flooding and wetness severely restrict grazing. Common bermudagrass is a suitable pasture plant. Cultivated crops are not grown, because of the uneven surface and the hazard of flooding. Capability unit Vw–1; woodland suitability group 3w6.

St—Sharkey-Tunica complex, gently undulating. These soils are on low ridges and in swales. They are poorly drained and clayey. Areas range from about 25 to 1,400 acres in size, but most areas are more than 50 acres. The ridges are 1 foot to 3 feet high and 75 to 250 feet wide. They make up 65 percent of the area. The swales are slightly depressional and are 25 to 150 feet wide. They make up 35 percent of the area. Slopes are 0 to 3 percent.

Sharkey clay makes up about 55 percent of this mapping unit. It is on the ridges and in the swales. This soil is high in natural fertility. Permeability is very slow.

Tunica clay makes up about 35 percent of this mapping unit. It is on the ridges. This soil is high in natural fertility. Permeability is very slow in the upper 20 inches.

These soils have profiles similar to the ones described as representative of their respective series, but their surface layer is about 4 inches thick and is dark gray. Water drains readily from the Tunica and Sharkey soils that are on the ridges and accumulates on the Sharkey soil that is in the swales. The Sharkey soil in the swales remains wet for long periods. A seasonally high water table is at a depth of 0 to 2 feet during the months of December through April. Wetness causes poor aeration and restricts plant root development. Wetness, low strength, and a very high shrink-swell potential are the main limitations for most uses. These soils are hard when dry and sticky when wet, and they are difficult to work. They crack when dry and swell and seal over when wet.

Included with these soils in mapping are small areas of Commerce, Dundee, and Tensas soils. Small areas of soils that have slopes that exceed 3 percent are also included.

Most areas of these soils are used for crops and pasture. Suitable crops are cotton, soybeans, wheat, and oats (fig. 12). Corn is not well suited. Because these soils are on ridges and in swales, their use for rice is limited. Suitable pasture plants are common bermudagrass, Coastal bermudagrass, dallisgrass, Pensacola bahiagrass, ryegrass, white clover, and tall fescue. Adequate stands of Coastal bermudagrass are somewhat difficult to establish. Good tilth is difficult to maintain. These soils can be worked only within a narrow range of moisture content. Some of the swales may be flooded by runoff from the higher areas after heavy rains. The soils in the swales need a surface drainage system if they are used for cultivated crops and pasture. Smoothing and leveling of land improve drainage and increase efficiency of farm equipment.

Figure 12.—**Soybeans on Sharkey-Tunica complex, gently undulating.**

Most crops respond well to nitrogen fertilizer. Capability unit IIIw–4; woodland suitability group 2w6.

SU—Sharkey and Tunica soils, frequently flooded. These poorly drained soils are in some of the lowest elevations between the Mississippi River and its protective levee system and in areas east of the river. These soils are not protected by the levee system. Areas range from 10 to 1,200 acres in size. Slopes are 0 to 3 percent. The composition of this mapping unit generally is more variable than that of other units in the survey area. Mapping has been controlled well enough, however, to make interpretations for the anticipated uses of the soils. These soils could have been mapped separately at the scale used, but this was not considered practical because of the present and projected land use.

Sharkey soils make up about 70 percent of this mapping unit. They are at low elevations on wide flats and in narrow depressions.

Tunica soils make up about 20 percent of this mapping unit. They are on low ridges and on the highest part of the low natural levees.

These soils have profiles similar to the ones described as representative of their respective series, but the surface layer, in places, is clay, silty clay loam, or silt loam. They are high in natural fertility. These soils crack when dry and swell and seal over when wet. Runoff is very slow. When these soils are not flooded, the water table is mainly at a depth of 0 to 3 feet. Permeability is very slow. Flooding, wetness, a very high shrink-swell potential, and low strength are the main limitations for most uses.

Included with these soils in mapping are small areas of Bruin and Commerce soils. Some areas of soils that have stratified layers of silt loam, clay, and silty clay loam are also included.

Most areas of these soils are used for woodland (fig. 13). A small acreage is used for pasture. A suitable pasture plant is common bermudagrass. Cultivated crops are not grown, because of the hazard of flooding. Capability unit Vw–1; woodland suitability group 3w6.

Figure 13.—**Woodland on Sharkey and Tunica soils, frequently flooded.**

Tensas series

The Tensas series consists of somewhat poorly drained, very slowly permeable soils. These soils formed in clayey sediment and in the underlying loamy sediment that is in slack-water deposits on the lower elevations of the natural levees of Joes Bayou, Bayou Macon, Tensas River, and the former channels of the Mississippi River.

In a representative profile the surface layer is dark grayish-brown clay about 5 inches thick. The subsoil extends to a depth of 49 inches. The upper part is 17 inches of grayish-brown silty clay, and the lower part is 27 inches of grayish-brown silty clay loam and silty loam. The subsoil is mottled throughout in shades of brown.

Most areas of these soils are used for woodland. A small acreage is used for crops and pasture.

Representative profile of Tensas silty clay in a field 12 miles northwest of Tallulah and 0.75 mile east of Joes Bayou, 69 feet east of half section line on the section line between sections 13 and 24, NW¼NE¼ sec. 24, T. 17 N., R. 11 E.:

Ap1—0 to 2 inches, dark grayish-brown (10YR 4/2) silty clay; few, fine, faint, yellowish-brown mottles; weak, medium, subangular blocky structure; friable; few fine pores; medium acid; abrupt, smooth boundary.

Ap2—2 to 5 inches, dark grayish-brown (10YR 4/2) silty clay; few, fine, faint, yellowish-brown mottles; massive; firm; medium acid; abrupt, smooth boundary.

B21t—5 to 16 inches, grayish-brown (10YR 5/2) silty clay; common, medium, distinct, strong-brown (7.5YR 5/6) and few, fine, faint, gray mottles; moderate, medium, subangular blocky structure; firm; common fine pores; thick discontinuous clay films; medium acid; clear, smooth boundary.

B22t—16 to 22 inches, grayish-brown (10YR 5/2) silty clay; many, medium, distinct, strong-brown (7.5YR 5/6) mottles; moderate, medium, subangular blocky struc-

ture; firm; common fine pores; common patchy clay films on ped surfaces and root channels; medium acid; clear, smooth boundary.

IIB31t—22 to 29 inches, grayish-brown (10YR 5/2) silty clay loam; common, medium, distinct, strong-brown (7.5YR 5/6) mottles; moderate, medium, subangular blocky structure; firm; common fine pores; common patchy clay films; some root channels filled with very dark gray material; very few, fine, brown concretions; medium acid; clear, smooth boundary.

IIB32t—29 to 37 inches, grayish-brown (10YR 5/2) silt loam; common, medium, distinct, strong-brown (7.5YR 5/6) mottles and few, fine, faint, yellowish-brown mottles; weak, medium, subangular blocky structure; firm; common fine pores; common patchy clay films; few, fine, black concretions; few root channels filled with very dark gray (10YR 3/1) material; slightly acid; clear, smooth boundary.

IIB33t—37 to 49 inches, grayish-brown (10YR 5/2) silt loam; common, medium, distinct, dark-brown (7.5YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few fine pores; thin patchy clay films on some ped faces and in a few root channels; slightly acid; clear, smooth boundary.

IIC1—49 to 63 inches, grayish-brown (10YR 5/2) silt loam; common, medium, faint, yellowish-brown (10YR 5/6) mottles; weak, medium, subangular blocky structure; slightly sticky; few, fine, black concretions; neutral; clear, smooth boundary.

IIC2—63 to 67 inches, brown (10YR 5/3) very fine sandy loam; common, medium, faint, grayish-brown (10YR 5/2) mottles; weak, medium, subangular blocky structure; nonsticky; mildly alkaline.

The A horizon ranges from 4 to 7 inches in thickness. It is dark grayish brown or grayish brown and has mottles in shades of brown. It ranges from medium acid to neutral in reaction. The B1 and B2t horizons are grayish brown or dark grayish brown. Some dark-gray and gray layers occur in places, particularly in and adjacent to Indian mounds. Mottles are in shades of brown. Texture is mostly silty clay, but it ranges to clay. Clay films range from common patchy to almost continuous. These horizons range from very strongly acid to medium acid in reaction. Combined thickness of the clayey A and B2 horizon is 18 to 27 inches. The IIB3t horizon is grayish brown and dark grayish brown and has mottles in shades of brown. It is silty clay loam, silt loam, or very fine sandy loam. Reaction ranges from medium acid to slightly acid. The IIC horizon is grayish brown or brown and has mottles in shades of brown. It is silt loam and very fine sandy loam that has layers of silty clay loam and ranges from slightly acid to neutral above a depth of 60 inches in reaction. Some profiles are mildly alkaline below a depth of 60 inches.

Tensas soils are associated with Dundee, Sharkey, and Tunica soils. Tensas soils are finer textured in the surface layer and in the upper part of the subsoil than Dundee soils. They are more acid and are better drained than Sharkey and Tunica soils. They are coarser textured in the lower part of the B horizon than Sharkey and Tunica soils.

Ta—Tensas silty clay. This somewhat poorly drained soil is mostly on nearly level areas on the lower parts of the natural levees of Bayou Macon, Joes Bayou, and the Tensas River. It is clayey in the upper part of the profile and loamy in the lower part. Areas range from about 10 to 900 acres in size, but most areas are more than 40 acres. Slopes are 0 to 1 percent.

This soil has the profile described as representative of the series. It is medium in natural fertility. Runoff is medium to slow. Permeability is very slow. A seasonally high water table is at a depth of 1 foot to 3 feet during the months of December through April. This soil cracks when dry and swells and seals over when wet. A very high shrink-swell potential in the upper 22 inches, wetness, and low strength are the main limitations for most uses.

Included with this soil in mapping are small areas of Dundee, Sharkey, and Tunica soils. Also included are small areas of soils on old Indian campground sites. These soils have dark-colored layers to a depth of as much as 20 inches. Small areas of soils that have slopes that exceed 1 percent are also included.

Most areas of this soil are used for woodland. A small acreage is used for crops and pasture. Suitable crops are cotton, soybeans, grain sorghum, wheat, oats, and rice. Corn is not well suited. Suitable pasture plants are common bermudagrass, Coastal bermudagrass, dallisgrass, ryegrass, white clover, and tall fescue. Adequate stands of Coastal bermudagrass are somewhat difficult to establish. In some years plants may suffer from a lack of moisture during dry periods in summer and fall. Good tilth is difficult to maintain, because of the high clay content in the surface layer. The soil can only be worked within a narrow range of moisture content and generally becomes cloddy when worked. It is hard when dry, sticky when wet, and is difficult to work. Complete fertilizers, as well as lime, are needed. Adequate drainage is needed if the soil is used for row crops and pasture. Smoothing and leveling of land improve drainage and increase efficiency of farm equipment. Capability unit IIIw–2; woodland suitability group 2w6.

Ts—Tensas-Sharkey complex, gently undulating. These somewhat poorly drained and poorly drained soils are on low parallel ridges and in swales. Areas range from about 10 to 2,300 acres in size, but most areas are more than 100 acres. Slopes are 0 to 3 percent. The ridges are 1 foot to 3 feet high and 100 to 200 feet wide. They make up about 55 percent of this mapping unit. The swales are slightly depressional and are 50 to 300 feet wide.

Tensas silty clay has a profile similar to the one described as representative of the Tensas series. It is on ridges and side slopes. This soil is medium in natural fertility. Water drains readily from this soil and accumulates on the Sharkey soils in the swales. This soil

has a seasonally high water table at a depth of 1 foot to 3 feet during the months of December through April. Permeability is very slow. Shrink-swell potential is very high in the upper 22 inches and low to moderate below. Wetness causes poor aeration and restricts plant root development. A very high shrink-swell potential, wetness, and low strength are the main limitations for most uses.

The Sharkey soils have a profile similar to the one described as representative of the Sharkey series, but the surface layer is silty clay loam and clay. These soils are in the swales. They are high in natural fertility. Permeability is very slow. Shrink-swell potential generally is very high throughout the profile. A seasonally high water table is at a depth of 0 to 2 feet during the months of December through April. Wetness causes poor aeration and restricts plant root development. A very high shrink-swell potential, wetness, and low strength are the main limitations for most uses.

Included with these soils in mapping are small areas of Dundee and Tunica soils and small areas of Sharkey soils that flood during winter and spring.

Most areas of these soils are used for woodland. A small acreage is used for crops and pasture. Suitable crops are cotton, wheat, soybeans, and oats. Corn is not well suited. Suitable pasture plants are common bermudagrass, Coastal bermudagrass, dallisgrass, Pensacola bahiagrass, ryegrass, white clover, and tall fescue. Adequate stands of Coastal bermudagrass are somewhat difficult to establish. In some years plants may suffer from lack of moisture during dry periods in summer and fall. The short irregular slopes, the texture of the surface layer, and the wetness in the swales make tillage operations difficult. A surface drainage system is needed in the swales for cultivated crops and pasture. Smoothing and leveling of land improve drainage and increase efficiency of farm equipment. The soils are hard when dry and sticky when wet. They can be worked within a narrow range of moisture content. They are difficult to work. The surface layer cracks when dry and seals over when wet. Complete fertilizers, as well as lime, are needed on the Tensas soil. Sharkey soils respond well to nitrogen fertilizer. Capability unit IIIw–5; woodland suitability group 2w6.

Tunica series

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

In a representative profile the surface layer is dark grayish-brown clay about 8 inches thick. The subsoil is about 22 inches of dark-gray clay. The underlying material is stratified dark-gray and grayish-brown silty clay loam and silt loam mottled in shades of brown.

Most areas of these soils are used for woodland and crops. A small acreage is used for pasture.

Representative profile of Tunica clay, in woodland, 4.5 miles northeast of Waverly, 40 feet south of gravel road, NE¼SE¼ sec. 33, T. 18 N., R. 11 E.:

A11—0 to 3 inches, dark grayish-brown (10YR 4/2) clay; few, fine, faint, dark-brown mottles; moderate, medium, subangular blocky structure; firm; few fine pores; mildly alkaline; clear, smooth boundary.

A12—3 to 8 inches, dark grayish-brown (10YR 4/2) clay and common, medium, faint, dark yellowish-brown (10YR 4/4) mottles and few, fine, faint, yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; few fine pores; neutral; clear, smooth boundary.

B21g—8 to 17 inches, dark-gray (10YR 4/1) clay; common, medium, faint, dark yellowish-brown (10YR 4/4) mottles and few, fine, faint, yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; neutral; clear, smooth boundary.

B22g—17 to 26 inches, dark-gray (10YR 4/1) clay; common, medium, faint, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; firm; few, fine, brown concretions; mildly alkaline; clear, smooth boundary.

IIC1—26 to 32 inches, dark-gray (10YR 4/1) silty clay loam; common, medium, faint, brown (10YR 5/3) mottles and few yellowish-brown mottles; weak, medium, subangular blocky structure; firm; mildly alkaline; abrupt, smooth boundary.

IIC2—32 to 38 inches, grayish-brown (10YR 5/2) silt loam; many, medium, faint, brown (10YR 5/3) mottles; weak, medium, subangular blocky structure; friable; fine and medium pores; mildly alkaline; clear, smooth boundary.

IIC3—38 to 53 inches, grayish-brown (10YR 5/2) silt loam; common, medium, faint, brown (10YR 5/3) mottles and few, fine, faint, yellowish-brown mottles; weak, medium, subangular blocky structure; friable; few fine pores; mildly alkaline; clear, smooth boundary.

IIC4—53 to 76 inches, grayish-brown (10YR 5/2) silt loam; common, medium, faint, yellowish-brown (10YR 5/6) mottles; weak, medium, subangular blocky structure; very friable; few fine pores; few streaks of gray; moderately alkaline.

The solum ranges from 20 to 34 inches in thickness. The profile is mottled in shades of brown. The A horizon is 4 to 9 inches thick. It is dark grayish-brown, dark-gray, or very dark grayish-brown clay, silty clay, silty clay loam, or silt loam. It ranges from medium acid to mildly alkaline in reaction. The B horizon is dark-gray or gray clay. It ranges from slightly acid to mildly alkaline. The IIC horizon is dark gray and grayish brown. It is silty clay loam, silt loam, or very fine sandy loam in texture. Stratification is common. The IIC horizon ranges from neutral to moderately alkaline in reaction.

Tunica soils are associated with Bruin, Commerce, Sharkey, and Tensas soils. Tunica soils have a finer textured B horizon than Bruin and Commerce soils. They lack the clayey C horizon of Sharkey soils. Tunica soils are finer textured in the lower part of the B horizon than Tensas soils and are less acid.

Tu—Tunica clay. This nearly level soil is on the lower parts of natural levees. It is poorly drained and is clayey in the surface layer and in the subsoil and loamy in the underlying material. Areas range from about 10 to 1,400 acres in size, but most areas are more than 60 acres. Slopes are 0 to 1 percent.

This soil is high in natural fertility. Runoff is slow. Permeability is very slow in the clayey surface layer and in the subsoil and moderate in the loamy underlying material. A seasonally high water table is at a depth of 0 to 2 feet during the months of December through April. Wetness causes poor aeration and restricts plant root development. This soil has very high shrink-swell potential in the clayey surface layer and in the subsoil. It cracks when dry and seals over when wet. A very high shrink-swell potential, low strength, and wetness are the main limitations for most uses.

Included with this soil in mapping are small areas of Commerce, Sharkey, and Tensas soils. Also included are small areas of soils on old Indian campground sites. These soils have dark-colored layers as much as 20 inches deep. Small areas of Tunica silt loam and silty clay loam are also included.

Most areas of this soil are used for woodland. A small acreage is used for crops and pasture. Suitable crops are cotton, grain sorghum, soybeans, wheat, oats, and rice. Corn is not well suited. Suitable pasture plants are common bermudagrass, Coastal bermudagrass, dallisgrass, tall fescue, Pensacola bahiagrass, white clover, and ryegrass. Adequate stands of Coastal bermudagrass are difficult to establish. Surface drainage is needed for crops and pasture. Smoothing and leveling of land improve drainage and increase efficiency of farm equipment. This soil is sticky when wet and hard when dry, and it is difficult to work. It can be worked only within a narrow range of moisture content. Crops respond well to nitrogen fertilizer. Capability unit IIIw–1; woodland suitability group 2w6.

Udifluvents

Ud—Udifluvents. This unit consists of well drained to somewhat poorly drained soils on spoil banks along Bayou Macon. It consists of highly variable clayey and loamy material dredged from the bayou. The areas are 50 to 300 feet wide, 15 to 30 feet high, and 2 to 12 miles long. Slopes are 3 to 20 percent.

Included with these soils in mapping are small areas of soils that have slopes of more than 20 percent.

These soils are medium in natural fertility. Runoff ranges from slow to rapid, and permeability is moderate to very slow. The depth to the water table is highly variable. The clayey material has a high shrink-swell potential. Wetness, steepness, low strength in places, and the uneven surface are the main limitations to the use of these soils.

About half of the acreage has been partially smoothed and used for pasture. The remaining acreage is steep and rough, and it is mostly in vines and trees. Common bermudagrass is a suitable pasture plant.

These soils are not suited to cultivated crops, because of the uneven surface and the steep slopes. They can be smoothed and used for pasture or planted to desirable trees. Capability unit VIe–1; woodland suitability group 2o6.

Udipsamments

Udipsamments consists of excessively drained, rapidly permeable soils. These soils occupy some of the highest elevations in the parish. They formed in sandy sediment of the Mississippi River and are between the river and the protective levee.

In a representative profile the surface layer is dark yellowish-brown loamy sand about 4 inches thick. The underlying material is brown sand and fine sand mottled in shades of brown.

Most areas of these soils have a sparse cover of weeds, grasses, and a few scrub trees. These areas are used for wildlife habitat and for very limited grazing by livestock.

Representative profile of Udipsamments on Paw Paw Island, 5,520 feet southwest of Louisiana-Mississippi state line near power line, 45 feet southeast of field road, 651 feet east of pasture fence, T. 17 N., R. 2 E.:

A—0 to 4 inches, dark yellowish-brown (10YR 4/4) loamy sand; single grained; very friable; many clear sand grains; common black sand grains; few sand grains in shades of brown; mildly alkaline; clear, smooth boundary.

C1—4 to 8 inches, brown (10YR 5/3) fine sand; common, medium, faint, dark yellowish-brown (10YR 4/4) mottles; single grained; loose; many clear sand grains; common black sand grains and a few sand grains in shades of brown; moderately alkaline; clear, smooth boundary.

C2—8 to 17 inches, brown (10YR 5/3) sand; single grained; loose; horizontal streak of dark-brown (10YR 4/3) fine sand ⅛ to ¼ inch wide; many clear sand grains; common black sand grains; few sand grains in shades of brown; moderately alkaline; clear, smooth boundary.

C3—17 to 60 inches, brown (10YR 5/3) sand; single grained; loose; few, very thin, dark-brown strata throughout; many clear sand grains; common black sand grains and few sand grains in shades of brown; moderately alkaline.

The A horizon ranges from 4 to 6 inches in thickness. It is dark yellowish brown, brown, or grayish brown and is mottled in shades of brown. It is neutral to moderately alkaline in reaction and is fine sand or loamy sand in texture. The C horizon is brown or light yellowish brown and is mottled in shades of brown. It is mildly alkaline or moderately alkaline in reaction and is sand or fine sand in texture.

Udipsamments are associated with Bruin, Commerce, and Crevasse soils. They are coarser textured than Bruin and Commerce soils. Udipsamments contain less silt and clay than Crevasse soils.

Us—Udipsamments. These soils are on the highest elevations in the parish between the Mississippi River and the protective levees, but they are subject to occasional flooding. They are excessively drained, sandy soils that formed in sandy alluvium deposited by the Mississippi River. Areas range from about 5 to 450 acres in size. Slopes are 0 to 5 percent.

Included with these soils in mapping are small areas

TABLE 6.—*Engineering*

[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. fully the instructions for referring to other series

Soil series and map symbols	Suitability as a source of—		Degree and kind of limitations for—		
	Topsoil	Roadfill	Pond reservoir areas	Dwellings without basements	Septic tank absorption fields
*Bruin: Ba	Good	Fair: low strength.	Moderate: seepage.	Slight	Moderate: percs slowly.
BC For Commerce part, see Commerce series.	Good	Fair: low strength.	Moderate: seepage.	Very severe: floods.	Severe: floods.
Commerce: Cm	Good	Fair: wet, low strength, shrink-swell.	Moderate: seepage.	Moderate: wet, low strength, shrink-swell.	Severe: wet, percs slowly.
Cn, Co	Fair: too clayey.	Fair: wet, low strength, shrink-swell.	Moderate: seepage.	Moderate: wet, low strength, shrink-swell.	Severe: percs slowly, wet.
Commerce part of BC	Good	Fair: wet, low strength, shrink-swell.	Moderate: seepage.	Very severe: floods.	Severe: floods, percs slowly, wet.
Crevasse: Cr	Poor: too sandy.	Good	Severe: seepage.	Very severe: floods.	Severe: floods.
*Dundee: Dd	Fair: thin layer.	Fair: wet, low strength, shrink-swell.	Moderate: seepage.	Moderate: wet, low strength, shrink-swell.	Severe: wet, percs slowly.
De, Ds For Sharkey part of Ds, see Sharkey series, Sa.	Fair: too clayey.	Fair: wet, low strength, shrink-swell.	Moderate: seepage.	Moderate: wet, low strength, shrink-swell.	Severe: wet, percs slowly.
*Sharkey: Sa, Sb, Sc, Sd, St For Tunica part of St, see Tunica series, Tu.	Poor: wet, too clayey.	Poor: wet, low strength, shrink-swell.	Slight	Severe: wet, shrink-swell, low strength.	Severe: wet, percs slowly.
Sf, SS, SU For Tunica part of SU, see Tunica series.	Poor: wet, too clayey.	Poor: wet, low strength, shrink-swell.	Slight	Very severe: floods, shrink-swell, low strength, wet.	Severe: floods, percs slowly, wet.
*Tensas: Ta, Ts For Sharkey part of Ts, see Sharkey series, Sa.	Poor: too clayey.	Poor: shrink-swell, low strength.	Slight	Severe: shrink-swell, low strength, wet.	Severe: percs slowly, wet.
Tunica: Tu	Poor: wet, too clayey.	Poor: wet, low strength, shrink-swell.	Slight	Severe: wet, shrink-swell, low strength.	Severe: wet, percs slowly.
Tunica part of SU	Poor: wet, too clayey.	Poor: wet, shrink-swell, low strength.	Slight	Very severe: floods, shrink-swell, low strength, wet.	Severe: floods, percs slowly, wet
Udifluvents: Ud. Too variable to rate.					
Udipsamments: Us	Poor: too sandy.	Good	Severe: seepage.	Very severe: floods.	Severe: floods.

interpretations of the soils

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

Degree and kind of limitations for—Continued							
Sewage lagoons	Local roads and streets	Small commercial buildings	Sanitary landfills (trench type)	Camp areas	Picnic areas	Playgrounds	Paths and trails
Moderate: seepage.	Moderate: low strength.	Slight	Slight	Slight	Slight	Slight	Slight.
Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
Severe: wet.	Moderate: wet, low strength, shrink-swell.	Moderate: wet, low strength, shrink-swell.	Severe: wet.	Moderate: wet, percs slowly.	Moderate: wet.	Moderate: wet, percs slowly.	Moderate: wet.
Severe: wet.	Moderate: wet, low strength, shrink-swell.	Moderate: wet, low strength, shrink-swell.	Severe: wet.	Moderate: wet, percs slowly, too clayey.	Moderate: wet, too clayey.	Moderate: wet, percs slowly, too clayey.	Moderate: wet, too clayey.
Severe: floods, wet.	Severe: floods.	Severe: floods.	Severe: floods, wet.	Severe: floods.	Moderate: floods, wet.	Severe: floods.	Moderate: floods, wet.
Severe: floods, seepage.	Severe: floods.	Severe: floods.	Severe: too sandy, floods, seepage.	Severe: too sandy, floods.	Severe: too sandy, floods.	Severe: too sandy, floods.	Severe: too sandy, floods.
Severe: wet.	Moderate: wet, low strength, shrink-swell.	Moderate: wet, low strength, shrink-swell.	Severe: wet.	Moderate: percs slowly, wet.	Moderate: wet.	Moderate: percs slowly.	Moderate: wet.
Severe: wet.	Moderate: wet, low strength, shrink-swell.	Moderate: wet, low strength, shrink-swell.	Severe: wet.	Moderate: wet, percs slowly, too clayey.	Moderate: wet, too clayey.	Moderate: wet, percs slowly, too clayey.	Moderate: wet, too clayey.
Slight	Severe: wet, shrink-swell, low strength.	Severe: wet, shrink-swell, low strength.	Severe: wet, too clayey.	Severe: wet, too clayey, percs slowly.	Severe: wet, too clayey.	Severe: wet, too clayey, percs slowly.	Severe: wet, too clayey.
Severe: floods.	Severe: wet, shrink-swell, floods, low strength.	Severe: wet, shrink-swell, floods, low strength.	Severe: floods, too clayey, wet.	Severe: floods, percs slowly, too clayey, wet.	Severe: floods, too clayey, wet.	Severe: floods, percs slowly, too clayey, wet.	Severe: floods, too clayey, wet.
Slight	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength, wet.	Severe: too clayey, wet.	Severe: too clayey, percs slowly.	Severe: too clayey, wet.	Severe: wet, too clayey, percs slowly.	Severe: wet, too clayey.
Severe: wet.	Severe: wet, shrink-swell, low strength.	Severe: wet, shrink-swell, low strength.	Severe: too clayey, wet.	Severe: wet, percs slowly, too clayey.	Severe: too clayey.	Severe: percs slowly, too clayey.	Severe: too clayey.
Severe: floods.	Severe: floods, wet, low strength, shrink-swell.	Severe: floods, wet, shrink-swell, low strength.	Severe: floods, wet, too clayey.	Severe: floods, too clayey, percs slowly, wet.	Severe: floods, too clayey, wet.	Severe: floods, too clayey, percs slowly, wet.	Severe: floods, too clayey, wet.
Severe: seepage, floods.	Severe: floods.	Severe: floods.	Severe: too sandy, floods.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.

the meanders of the streams that form them. These deposits are obscured in some places by overlying natural levee deposits that slope gently but evenly away from the final stream courses. Natural levees are caused by deposition during overflow.

Though the origin of the deposits in the Tensas, Walnut, Roundaway, and modern Mississippi meander belts is the same, the soils associated with them reflect their varying ages. The Tensas and Dundee soils are on the oldest meander belt; Commerce, Bruin, and Sharkey soils occur on the modern meander belt.

The Arkansas River shifted its meander belt during the last 5,000 years in a fashion similar to that of the Mississippi. Only one of its courses, an early one, extends southwest through the western part of Madison Parish. Joes Bayou and Bayou Macon downstream are relics of this course, which has pronounced but narrow natural levees that are largely obscured by more recent Mississippi River deposits.

Natural resources

Timber, water, oil, and gas are the main natural resources of Madison Parish. Large areas of woodland have good stands of hardwood trees, and most of the woodland has been developed to support the lumber and pulpwood industries. One large sawmill is located in Tallulah. The woodland also supports a large population of white-tailed deer.

The Mississippi River, perennial streams, lakes, and drilled wells provide an adequate supply of water for livestock, ranching and farming, and domestic and other uses.

A small oil field is located in the western part of the parish. Pipelines transport the oil and gas produced in this field to other locations for processing.

One gravel deposit is located about 5 miles south of Mound, between the Mississippi River and its protective levee system. Sand and other nonplastic material can be obtained from bar deposits along the Mississippi River.

Climate

Madison Parish is in a subtropical, transitional climatic region that is affected alternately by cold, dry air flowing southward and by warm, moist air flowing northward. Changes in direction of flow frequently bring significant, and sometimes abrupt, weather changes (table 8).

Summers are consistently warm, but maximum temperatures exceeding 100° F are uncommon. At Tallulah, a temperature of 105° was recorded in August 1909. Temperatures of 90° or warmer may be expected each year from May to early in October. Some years have less than 50 days or more than 120 days when the temperature reaches 90°.

Winters are comparatively mild, although absolute minimum temperatures are quite low. Most years have 1 day or more when the minimum temperature drops to 20° or colder. At Tallulah, a temperature of −12° was recorded on February 2, 1951. Temperatures of 32° or colder may be expected from late in October to early in April (table 9). Some years may have less than 30 days to more than 65 days when the temperature drops to 32° or colder. Cold spells are usually brief, and only about 1 year in 2 has 1 day or more when the temperature does not rise above 32°. The ground freezes briefly to a shallow depth during spells of colder weather.

Precipitation occurs on about 2 days out of 7 on an annual basis. Rainfall is mainly in the form of showers. Infrequent periods of prolonged, steady rain occur during winter and spring.

During the cooler months the weather pattern commonly follows the sequence of rain; low temperatures;

TABLE 8.—*Temperature and precipitation*

[Data recorded at Tallulah 2SW]

Month	Temperature				Precipitation		
	Average daily maximum	Average daily minimum	Average maximum	Average minimum	Average monthly total	One year in 10 will have—	
						Less than—	More than—
	°F	°F	°F	°F	In	In	In
January	57	36	77	18	4.7	1.5	8.4
February	61	39	78	21	5.0	2.1	8.4
March	68	45	82	28	5.9	2.9	10.1
April	77	54	87	37	5.3	1.9	9.4
May	84	61	92	47	4.6	1.7	8.1
June	90	68	96	57	3.5	1.0	6.7
July	92	70	97	62	4.2	1.4	7.5
August	92	69	97	58	3.3	.6	7.1
September	87	63	95	46	2.6	.6	4.8
October	79	50	89	32	2.7	.3	6.2
November	68	42	83	23	4.2	.9	8.8
December	59	37	77	20	5.4	2.5	8.8
Year	76	53	98	14	51.4	35.9	67.3

TABLE 9.—*Probabilities of last freezing temperatures in spring and first in fall*

[Data recorded at Tallulah 2SW]

Probability	Dates for given probability and temperature		
	24° F or lower	28° F or lower	32° F or lower
Spring:			
1 year in 10 later than	March 10	March 27	April 8
2 years in 10 later than	February 28	March 20	April 2
5 years in 10 later than	February 8	March 5	March 22
Fall:			
1 year in 10 earlier than	November 3	October 28	October 14
2 years in 10 earlier than	November 7	October 30	October 20
5 years in 10 earlier than	November 24	November 11	October 29

moderate temperatures; a few clear, mild days; and more rain.

Snowfall is relatively rare. Measurable amounts of snow occur in less than 1 year out of every 2, and accumulation averages about 2 inches per year. Several years may pass with no snow accumulation. Snowfalls of several inches have been measured in some storms during December, January, and February. Infrequent glaze or ice storms have caused widespread damage.

Thunderstorms may occur during any season. Most months have 1 day or more that have thunder, and the annual average is 60 to 70 days. Almost all summer days that have rain also have thunder and lightning in the afternoon and evening. These days are most common during June and July. Fall and winter have far fewer thunderstorms. The cool-season thunderstorms are commonly associated with passing fronts and squall lines. These storms may occur at any hour, and they usually are accompanied by stronger winds than those that occur during summer. Rainfalls of about 6 inches in a 12-hour period can be expected to occur once in 10 years.

During the warmer months, northerly and westerly winds occasionally bring extended periods of hot, dry weather. Droughts lasting more than 1 month have been recorded in some parts of the parish. Harvests are often assisted by dry weather in fall.

Data on evaporation from Class A pans provide some information on water loss from soils and crops. The mean annual pan evaporation is about 60 inches. Of that amount, 69 percent, or about 41.5 inches, evaporates during the period of May through October. Pan evaporation is a maximum, or potential, value; actual mean open-lake evaporation is about 45 inches. The actual moisture loss is less because availability of soil moisture is often limited.

Annual mean relative humidity is about 72 percent. Humidity of less than 30 percent averages only about 2 percent of the hours during the year and less than that in summer. Humidity of more than 80 percent averages about 40 percent of the annual hours and is most frequent early in the morning. At times heavy fog occurs at night and early in the morning, but it rarely lasts throughout the day.

Sunshine averages about 63 percent of the possible annual total, or slightly less than 2,800 hours per year.

Windspeed is mainly less than 10 miles per hour, but gusts may exceed 40 miles per hour during storms. Winds are mainly southerly during the summer and northerly during the winter. Based on measurements at a standard instrument elevation of 30 feet, it is estimated that a sustained windspeed of 70 to 75 miles per hour occurs an average of once in 50 years.

Ground water

The Mississippi River alluvial aquifer of Pleistocene age is the most important ground-water reservoir in Madison Parish. The aquifer underlies the entire parish and is capable of yielding a large quantity of fresh ground water in all areas of the parish, except in a narrow strip extending 3 miles east of Quebec to just west of Tallulah. In this small area the aquifer contains saline water that has chloride concentrations as high as 1,400 milligrams per liter. The top of the aquifer ranges from a depth of 10 feet in the western part of the parish to a depth of 50 feet in the eastern part of the parish. Thickness of the aquifer ranges from 60 feet in the western part of the parish to 140 feet in the eastern part. The aquifer is predominantly sand and gravel. The layers of coarser sediment are thicker in buried stream channels.

The fine sand, silt, and clay deposits of Holocene age that overlie the Pleistocene deposits yield a small quantity of water. Locally, clay confines water to the Mississippi River alluvium and retards recharge. The more permeable surface deposits permit recharge from precipitation and from local streams. These deposits are considered part of the Mississippi River alluvial aquifer.

The water level in the Mississippi River alluvial aquifer is commonly at a depth of less than 25 feet. Annual water-level fluctuations are greatest near the Mississippi River and smallest in areas least affected by streams. During most of the year, ground water is discharged from the aquifer to the rivers and bayous in the parish. During high stages of these streams, some water flows from the streams into the aquifer.

The uses of ground water from the Mississippi River alluvial aquifer in this parish and the average quantity