

**UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF CHEMISTRY AND SOILS**

In cooperation with the Arkansas Agricultural Experiment Station

**SOIL SURVEY
OF
NEVADA COUNTY, ARKANSAS**

BY

W. I. WATKINS, in Charge, M. J. EDWARDS, and C. E. BORN
U. S. Department of Agriculture, and A. H. MEYER
Arkansas Agricultural Experiment Station

Beginning with the 1923 Series, Soil Survey Reports will be issued separately. These reports of the individual areas will be sent to libraries as soon as they are available and should be filed, preserved, and ultimately bound to take the place of the bound volumes of the Field Operations which have previously been supplied by the department. The reports for each year will be consecutively numbered, the last report for a particular year bearing the conspicuous notice: "This number is the final and last Soil Survey Report for the Year 192-."



BUREAU OF CHEMISTRY AND SOILS

HENRY G. KNIGHT, *Chief*
A. G. McCALL, *Chief, Soil Investigations*
SYDNEY FRISSELL, *Editor in Chief*

SOIL SURVEY

CURTIS F. MARBUT, *in Charge*
H. H. BENNETT, *Inspector, District 4*

COOPERATION

ARKANSAS AGRICULTURAL EXPERIMENT STATION
D. T. GRAY, *Director*

CONTENTS

	Page
County surveyed.....	1
Climate.....	3
Agriculture.....	4
Soils.....	7
Ruston fine sandy loam.....	11
Ruston gravelly fine sandy loam.....	13
Ruston very fine sandy loam.....	13
Ruston loamy fine sand.....	14
Susquehanna silty clay loam.....	14
Susquehanna silt loam.....	15
Susquehanna very fine sandy loam.....	16
Susquehanna fine sandy loam.....	16
Orangeburg fine sandy loam.....	17
Luverne fine sandy loam.....	18
Caddo fine sandy loam.....	18
Caddo very fine sandy loam.....	19
Caddo silt loam.....	19
Norfolk fine sand.....	20
Thomasville gravelly very fine sandy loam.....	20
Houston clay.....	21
Crockett clay.....	22
Prescott silty clay loam.....	22
Nevada silty clay loam.....	23
Kirvin fine sandy loam.....	23
Greenville fine sandy loam.....	24
Kalmia fine sandy loam.....	25
Cahaba fine sandy loam.....	25
Amite fine sandy loam.....	26
Myatt very fine sandy loam.....	27
Ochlockonee silt loam.....	27
Ochlockonee silty clay loam.....	28
Ochlockonee fine sandy loam.....	28
Bibb clay.....	29
Bibb silt loam.....	29
Bibb very fine sandy loam.....	29
Catalpa clay.....	30
Summary.....	30

SOIL SURVEY OF NEVADA COUNTY, ARK.

By W. I. WATKINS, in Charge, M. J. EDWARDS, and C. E. BORN, U. S. Department of Agriculture, and A. H. MEYER, Arkansas Agricultural Experiment Station

COUNTY SURVEYED

Nevada County is in the southwestern part of Arkansas. The western, southern, and eastern boundaries are formed by straight lines, but the northern boundary follows the diagonal course of Little Missouri River. The length of the western boundary is 35 miles and of the eastern boundary is 22 miles, and the width of the county is 21 miles. The total area is 620 square miles, or 396,800 acres.

The relief varies from comparatively flat or undulating to rolling and steeply rolling. The northern end of the county is flat or undulating. The stream divides are rather broad and the stream slopes are gentle. The more nearly level upland areas are in the vicinity of Prescott, on the drainage divide between Terre Rouge and Garland Creeks and in the vicinity of Boughton. The area near Boughton appears to be an old stream terrace. In addition to these level areas a broad flat belt parallels Little Missouri River in the northern part of Boughton and Missouri Townships, and another is in Redland Township. The smoother land is north of a line extending northeast along Terre Rouge Creek to a point 3 miles northeast of Bluff City. A small area in the vicinity of Lackland Springs Church is rolling. At the western end this smoother area blends into a strip of gently rolling country which extends southeast through Bodcaw and Willisville, including the territory drained by Little Bodcaw and Dorcheat Creeks. Most of the slopes to the streams within this area are rather steep but are not excessively long. The remainder of the county, which is practically all drained by Caney Creek and its tributaries, is rolling or steeply rolling, with steep slopes to the creek ranging from 50 to 75 feet in height on one side but as a rule more gently sloping on the other side. The stream divides are more narrow and more thoroughly dissected. Some of the broader and less dissected divides are in the vicinity of Cale, south of Bluff City, near Ebenezer School, and in the vicinity of Glenville. The rougher areas are near Bluff City and Rosston.

The average elevation of the county is about 300 feet above sea level, but it ranges from about 170 to 380 feet. The relief is generally favorable to cultivation, except along the steeper stream slopes or in the rougher areas. Terracing is necessary on most farms to prevent erosion.

The entire county lies within the Little Missouri and Red Rivers drainage basins. The principal stream in the county is Caney Creek, which originates in the southeastern part of the county, flows north to a point just south of Lackland Springs Church, and then takes a northeasterly course. Most of the county is reached by stream



FIGURE 1.—Sketch map showing location of Nevada County, Ark.

drainage, except the large flats along the river. Many small streams from the uplands empty their water over these flats, as here the drainage channels are either poorly defined or are entirely lacking. Most of the stream channels are cut from 25 to 75 feet below the upland. The valleys, including the terraces, range from less than a mile to more than 5 miles in width, those along Caney and Terre Rouge Creeks being from 1 to 2 miles wide. The stream channels are not well developed, and overflows are caused during rainy periods by obstructions of brush, logs, and cypress knees.

Nevada County was organized in 1871 from parts of Columbia, Hempstead, and Ouachita Counties. Some scattered settlements were made within the county in the early part of the nineteenth century. Most of the early settlers came from other Southern States. Among the present inhabitants are descendants of these settlers and a few immigrants from other States, who were attracted by the lumber industry. A large percentage of the population is colored. Most of the colored people are tenants on farms, but in the southeastern part of the county a goodly number own their farms.

The present population of Nevada County is 21,934. Of this number 19,243 are classed as rural. The density of the rural population is 31 persons to the square mile. The rural population is not evenly distributed. By referring to the location of dwellings shown on the soil map a fair idea of the distribution of the population is obtained.

Prescott, the county seat, in the northern part of the county, has a population of 2,691, according to the 1920 census. It is the most important railroad, distributing, and shipping point in the county. Other small towns are Emmet, Boughton, Bodcaw, Rosston, Willisville, Bluff City, and Falcon. Of these, the largest are Emmet and Bodcaw, with populations of 420 and 319, respectively. Emmet and Boughton are railroad towns, and the rest are inland towns. In addition to the towns a number of rural stores and trading points are scattered throughout the county.

The county is not well supplied with transportation facilities. The Missouri Pacific Railroad runs diagonally across the northern part, passing through Prescott, Emmet, and Boughton. The Prescott & Northwestern Railroad runs northwest from Prescott to Blevins in Hempstead County. The Reader Railroad enters the northeastern corner of the county and extends southward along Caney Creek to the oil fields. This road is used only for hauling timber and oil. Railroad transportation for people living in the southern part of the county is available at Stephens, McNeil, Waldo, and Stamps; in the western part at Hope; and in the eastern part at Sayre and Camden, all in adjoining counties. A large part of the county is 15 or more miles from a shipping point, and the roads are in bad condition during the winter.

Nevada County has a network of public and secondary roads which reach practically all parts except the extreme northwestern corner in what is locally known as the flats. There is one hard-surfaced road from Prescott to Blevins, Hempstead County, and several good dirt roads. The other roads connecting the outlying towns with Prescott and other shipping points outside the county are usually in fair condition during most of the year but at times during the winter are impassable, except for horse-drawn vehicles. Most of the secondary roads are more difficult to travel. During the last year the

roads have been greatly improved by grading, bridging streams, and providing better drainage. The next five years will probably see a good road system developed throughout the county.

The chief markets are Little Rock, St. Louis, Memphis, and the cotton centers of the East and South. Cotton and lumber are the leading products shipped out of the county, but some garden truck, sweet potatoes, and other products are shipped. The truck crops, principally radishes, are sold in Chicago.

Most of the villages have good schools for both white and colored pupils, but in some of the outlying districts the school terms are very short. Prescott has an exceptionally good school system.

CLIMATE

The climate of Nevada County is characterized by long, hot summers and short, mild winters. The ground often freezes to a depth of 1 or 2 inches for a few days at a time.

The mean annual precipitation of 45.79 inches is generally well distributed throughout the year, though the larger part of it occurs during the winter and spring. In the summer the upland section of the county occasionally suffers from short periods of drought. At times there is a snowfall of an inch or two during the winter, but many winters pass with only light snow flurries.

The average date of the last killing frost is March 24 and of the first is November 5. The latest recorded killing frost occurred on April 26 and the earliest on October 9. There is a normal frost-free season of 226 days, which is long enough for the production of all the important crops produced in the county.

Table 1 gives the normal monthly, seasonal, and annual temperature and precipitation, as recorded by the Weather Bureau station at Prescott.

TABLE 1.—Normal monthly, seasonal, and annual temperature and precipitation at Prescott

[Elevation, 327 feet]

Month	Temperature			Precipitation			
	Mean	Absolute maximum	Absolute minimum	Mean	Total amount for the driest year (1899)	Total amount for the wettest year (1905)	Snow, average depth
	° F.	° F.	° F.	Inches	Inches	Inches	Inches
December.....	43.8	81	4	4.23	1.20	6.87	0.9
January.....	44.3	83	-7	4.40	8.40	5.38	1.3
February.....	45.1	87	-1	3.51	1.53	3.94	.8
Winter.....	44.4	87	-7	12.14	11.13	16.19	3.0
March.....	54.9	91	22	4.42	1.70	6.78	Trace.
April.....	62.8	93	30	5.09	3.51	6.62	0
May.....	70.9	97	35	5.21	6.19	14.15	0
Spring.....	62.9	97	22	14.72	11.40	27.55	Trace.
June.....	78.5	106	49	3.62	.93	9.77	0
July.....	81.8	111	55	3.24	2.99	6.36	0
August.....	81.1	111	50	3.33	.45	5.11	0
Summer.....	80.5	111	49	10.19	4.37	21.24	0
September.....	75.9	106	38	2.99	.83	3.73	0
October.....	64.0	97	23	2.20	2.30	2.49	0
November.....	53.9	88	15	3.55	1.54	3.68	0
Fall.....	64.6	106	15	8.74	4.67	9.90	0
Year.....	63.1	111	-7	45.79	31.57	74.88	3.0

AGRICULTURE

The earlier settlers of Nevada County were principally traders and trappers, but with the arrival of permanent settlers agriculture became the chief occupation. These later settlers came mostly from other Southern States and brought slaves with them. They grew much of what they needed and traded their surplus cotton for articles they could not grow or make at home. It was the custom in the early days to clear off a piece of land and after cultivating it for a few years to allow it to revert to forest and clear another piece, thus always using new land. Cotton and corn were the leading crops, and livestock was grazed on the open range. The Civil War and reconstruction period retarded the growth and development for many years, but the opening of the territory by railroads and the subsequent increase in population gave agriculture an impetus. By encouraging settlement, the lumber industry has been an important factor in the agricultural development. Lumbering has been important in Nevada County for the last 25 or more years, as shortleaf pine and hardwoods grew all over the county, except on the prairie around Prescott.

At present the chief crops are cotton and corn. Their acreage was about equal in 1879, but in 1919 corn occupied 45,978 acres and cotton 40,095 acres.

Commercial fertilizers are used on many farms. Very few farmers practice crop rotation or green manuring or grow legumes in the rotation.

The general practice is to plow for crops in winter or early spring. Some farmers, in preparing land for cotton, throw up beds or ridges about $3\frac{1}{2}$ feet apart, fertilize them at the rate of 200 or 300 pounds to the acre of commercial fertilizer, then throw two more furrows on top of this ridge before planting. This is said to give the best results on the heavier soils, such as the Thomasville, Kirvin, and Susquehanna, but on the sandy soils some believe that the fertilizer should be closer to the seed. Many kinds of fertilizer mixtures are used for cotton, but most farmers favor a 2-10-2¹ or 4-10-2 mixture. It also seems to be generally agreed that moderately heavy applications of fertilizer pay better on the soils having the heavier subsoils than on the sandy soils. After the cotton reaches a height of 2 or 3 inches, it is chopped out. This is done by "barring off," that is, turning the soil away from the row on both sides with a small turning plow and then thinning out (chopping) with a hoe. This is the same general method practiced throughout the South. The crop is then cultivated similarly to corn and is laid by in July. Picking usually starts the latter part of August or the first of September. The boll weevil has made the growing of cotton very uncertain and has forced the farmers to try to grow other crops. The 1924 and 1925 ginning records reported more than 11,000 bales for the county. This was about 4,000 bales more than were reported in 1922 and 1923.

Bottom land is frequently selected for corn. The land is prepared in much the same manner as for cotton. The yields generally obtained do not seem to warrant the growing of corn for market, except on some of the better bottom-land soils where yields of 30 or 40 bushels to the acre are obtained. Corn was grown on 35,525 acres in 1924.

¹ Percentages, respectively, of nitrogen, phosphoric acid, and potash.

Of this total, 328 acres were cut for fodder and 135 acres were hogged off. The yield of grain was 315,466 bushels. The corn may be husked in the field but is usually snapped and husked later in the crib. Some farmers top the stalks and strip the leaves off for fodder, but many farmers turn the livestock into the field to pasture. Cottonseed meal and barnyard manure are the fertilizers most commonly used. Corn is usually dropped or planted by hand.

Oats were grown on 1,329 acres in 1879, on 5,789 acres in 1899, and on 1,785 acres in 1909. Since 1909 the acreage has remained about the same. The census reports 1,717 acres of oats in 1924. Most of this was cut and fed unthreshed. The crop from 72 acres was threshed and yielded 1,504 bushels. Winter oats occupy the largest acreage and are used for pasture as well as for grain.

Wheat is grown to a very small extent, and the yields are low. Sweet potatoes and peanuts are grown by many farmers, largely for home consumption. Any surplus is sold on local markets. Sweet potatoes yield from 90 to 100 bushels to the acre. They were grown on 401 acres in 1924. Peanuts were grown on 395 acres in 1924, and yielded about 12 bushels to the acre. The vines are used as forage. Dry peas or cowpeas are about equal in acreage to peanuts and sweet potatoes, but the yields are more uncertain. These crops are used locally.

The growing of radishes, cantaloupes, and spinach is becoming important in the vicinity of Prescott and Arcadia, Hempstead County. The radishes are grown early for northern markets and often prove very profitable.

Tame and cultivated grasses, according to the census, were grown on 2,030 acres in 1919. Of this total alfalfa occupied 619 acres and yielded about 2 tons to the acre. Alfalfa is grown chiefly on the Houston and Crockett soils. Wild, salt, and prairie grasses were cut from 2,047 acres, and grains were cut green from 2,337 acres. The 1925 farm census reports hay of all kinds cut from 5,974 acres in 1924. Of this acreage 4,160 acres were occupied by wild grasses and 246 acres by alfalfa. The principal wild grasses are broom sedge, crab grass, and prairie grass. Large quantities of hay and forage are shipped into the county, as very few farmers produce enough hay for their own needs.

In 1919 there were 10,523 apple trees and 46,871 peach trees in the county, and in addition a few pear, plum, and fig trees. The principal small fruit is the strawberry. Blackberries grow wild, and a few pecan trees are scattered throughout the county.

The 1920 census figures show a yield of 1,464 gallons of sirup from 34 acres of sugar cane and 41,635 gallons from 1,133 acres of sorghum cane in 1919.

The census gave the value of dairy products for 1919 as \$223,493. This was an increase of \$107,068 over 1909. In 1919, 1,334,152 gallons of milk were produced. The 1925 farm census reports the production of milk in 1924 as 1,560,936 gallons and the value of all dairy products as \$175,486. Some small commercial dairy farms are in the county. The Jersey is the chief breed of dairy cows kept.

The value of poultry and eggs increased from \$70,916 in 1909 to \$216,181 in 1919. The value of poultry and eggs in 1924 was \$135,450. Poultry is gradually becoming a more important source of farm income.

The estimated value of animals sold and slaughtered in 1919 was \$521,599 and in 1909 was \$288,669. Swine lead in number, followed by cattle. A few hogs are found on practically all the farms. Most farmers try to raise enough for their own use, but not enough pork is produced to supply the whole county. Some hogs are occasionally shipped out of the county. The principal breeds of hogs are Poland China and Duroc-Jersey. Most of the cattle are mixed with Jersey. They are of inferior grade, and are mostly poorly kept, as they are forced to range through the woods without proper supplementary feeding. They are infested with ticks and are small. When the open range existed livestock was an important source of revenue to many farmers. At one time Nevada County was free of ticks.

The number of farms increased from 1,861 in 1890 to 3,682 in 1920, with a corresponding increase from 59.7 per cent to 70.5 per cent of the county in farms. The average size of the farms decreased from 128 to 76 acres during the same period, and the improved acreage to the farm decreased from 47 to 39.8 acres. The value of all farm property to the farm increased from \$900 in 1890 to \$3,079 in 1920, the greatest increase taking place in the last decade. The 1925 farm census reports 3,307 farms in the county, with an average size of 82.3 acres and an average value of all property to the farm of \$2,002. In 1920, 61.8 per cent of the farm value was in land, 18.8 per cent in buildings, 5.3 per cent in implements, and 14.1 per cent in domestic animals. In 1925, 61.3 per cent of the value was in land, 21.9 per cent in buildings, 4.7 per cent in implements, and 12.1 per cent in domestic animals. The buildings on most of the owner-operated farms are well constructed, but many of those on tenant farms are inadequate.

Table 2 gives selected farm expenses for 1909, 1919, and 1924, as reported by the census:

TABLE 2.—Selected expenses in stated years

	1909		1919		1924	
	Farms reporting	Expense per farm	Farms reporting	Expense per farm	Farms reporting	Expense per farm
	<i>Number</i>	<i>Dollars</i>	<i>Number</i>	<i>Dollars</i>	<i>Number</i>	<i>Dollars</i>
Labor.....	875	65.48	694	62.01	331	69.98
Feed.....	1,144	42.21	1,800	121.99	1,560	74.17
Fertilizer.....	624	26.18	1,742	108.60	1,921	58.13

This table shows that labor was the chief item of farm expense in 1909, but that in 1919 and 1924 feed was the chief source of expense. The large expenditure for feed should and could be avoided by a proper system of farm and soil management.

Of the total number of farms, 77.8 per cent were operated by owners in 1879, 51.5 per cent in 1919, and 48.7 per cent in 1924. With the decrease in owner-operated farms there is a corresponding increase in those operated by tenants. Various systems of crop rent are practiced. When the owner furnishes all the machinery and horses and one-half the fertilizer, the crop is equally divided. Where the tenant furnishes everything, the landlord gets one-third of the cotton and one-fourth of the corn. Meadows are usually cut on the half-share basis.

SOILS

The soils of Nevada County are more or less similar to those of other parts of the forested Gulf coastal plain where rainfall and climatic conditions are the same. They are derived mostly from unconsolidated sandy and clayey beds, but in a few scattered areas have developed from limestone or shell conglomerate. Through the agencies of weathering these materials have gradually decomposed to form the soils. The heavier clay subsoils do not occur at any constant depth but may be found at a depth varying from a few inches to several feet. The color of this clay section varies from yellow or grayish yellow to brown and red, depending chiefly on the amount of leaching and oxidation that has taken place. Below the layer of more uniformly colored red, yellow, brown, and gray material, mottled material appears, indicating that in this part of the soil oxidation has not proceeded so far as in the layer above.

The topsoil commonly contains two distinct layers, a surface layer in which organic matter has accumulated from the covering of vegetation, and a lighter-colored subsurface layer in which very little organic matter has accumulated. Very little lime is present in the parent material, except in the limestone and shale conglomerates. In places lime leached from the upper layers has accumulated in the subsoil as nodules or chalky material. Most of the soils, however, are not only very poor in lime carbonate but give an acid reaction. Streams cutting through the uplands have built up broad flood plains, then have cut below them, leaving the older flood plains as terraces or second bottoms, to form new flood plains within the confines of the older. Thus old and recent alluvial soils are in close association, the older occupying the higher position and the more recent the lower areas. The older soils have developed layers somewhat similar to those of the upland soils.

All soils in the county, except in the vicinity of Prescott, were originally forested, the bottom-land soils being covered mainly with hardwoods, such as oak, hickory, various gums, holly, and cypress, with some pine, and the uplands principally with pine. Sweet gum grows in the wetter areas.

The Ruston soils in most places have grayish-brown or brown, friable surface layers which grade, at a depth of 2 or 3 inches, into yellowish, friable material, underlain at a depth ranging from a few inches to more than 2 feet by reddish-yellow or yellowish-red friable sandy clay. The subsoil crumbles with moderate pressure. This layer varies greatly in thickness and gradually gives way to sandy clay material splotched gray, yellow, and reddish. This shows a less advanced stage of weathering than the layer above. The gray color increases with depth to the gray and olive-gray parent material. In color the subsoil of sandy clay is intermediate between those characterizing the soils of the Norfolk and Orangeburg series. Drainage is commonly good in the Ruston soils. Ruston fine sandy loam, with a smooth phase, Ruston very fine sandy loam, Ruston gravelly fine sandy loam, and Ruston loamy fine sand were mapped.

The Susquehanna soils have a 3 or 4 inch surface layer of brownish-gray material in the lighter-textured members and brown or mottled brownish, yellowish, or grayish in the heavier members. The subsurface layer is in most places a shade lighter in color than the

surface soil and grades into red or brownish-red, plastic, heavy clay mottled with gray or bluish gray and some yellow. The darker colors gradually diminish and the gray increases with depth to the parent material. Slight mottles of gray or pale yellow are present in many places in the lower part of the subsurface layer, just above the heavy clay. The lighter-colored subsurface layer is very thin in some places and in others is lacking. Surface drainage is commonly good or excessive in these soils, but internal drainage is not so good. The surface varies from flat to strongly rolling. Susquehanna silty clay loam, Susquehanna silt loam, Susquehanna fine sandy loam, and Susquehanna very fine sandy loam were mapped.

The Orangeburg soils have grayish-brown or light-brown surface soils. The sandier members of the series are somewhat lighter in color. The subsurface layers are in most places less brown and more reddish as compared with the surface soils. The subsoils are friable and permeable. These soils are everywhere well drained. Only Orangeburg fine sandy loam is shown on the map.

The Luverne soils differ from the Orangeburg chiefly in having a more compact lower subsoil layer. This compact layer shows more yellowish splotches than the corresponding section of the Orangeburg soils. Luverne fine sandy loam was mapped.

The Caddo soils have dark or pale yellowish-gray surface soils from 2 to 4 inches thick, and subsurface soils of about the same texture but of lighter color. Some yellow and gray mottles may be present in this layer. It grades into pale-yellow, friable material mottled in most places with gray at a depth varying from 18 to 30 inches. This lower mottled layer is moderately compact. The gray color becomes more predominant with depth. The soils of this series are not drained so well as the Ruston and Norfolk soils. The surface is commonly flat or gently rolling, with frequent long, gentle slopes. These soils are known as flatwoods land. The native growth consists chiefly of pine and sweet gum, with a sprinkling of hardwoods. Caddo fine sandy loam, Caddo very fine sandy loam, and Caddo silt loam were mapped.

The virgin soils of the Norfolk series have grayish-brown surface soils and lighter-colored or pale-yellowish subsurface layers. The sandy clay subsoils are yellow or pale yellow and are friable. The drainage is good. The surface is gently undulating or slightly rolling. Norfolk fine sand was mapped.

The Thomasville soils have dark-brown or reddish-brown, friable surface layers and slightly lighter-colored subsurface layers which are mottled with yellow and gray and in some places with red in the lower part. This material grades abruptly into red, yellow, and gray friable sandy clay containing numerous black and yellow iron concretions which increase in number beneath what essentially constitutes a hardpan. This layer of iron accumulation varies greatly in depth and thickness. Below it the soil is ordinarily bluish gray or gray. Concretions occur in varying numbers on the surface and throughout the soil, and some chert is present. Originally this was a forested soil. The relief is undulating or gently rolling. Surface drainage is good, but internal drainage is not everywhere so good. The surface of the virgin soil is darker colored to a depth of 3 or 4 inches, and a thin layer of leaf mold covers it. Thomasville gravelly very fine sandy loam, with a slope phase, was mapped in this county.

The Houston soils consist of very dark-brown or black clay which crumbles on drying. The surface soils are underlain by brown or yellowish-brown, sticky, plastic clay beneath which is yellow or greenish-yellow, sticky, plastic clay containing varying quantities of lime concretions and white chalky material or calcium carbonate. The subsoils everywhere effervesce with hydrochloric acid, but the surface soils may or may not effervesce, depending on the amount of leaching which has taken place. In many places shell fragments and fossils are present. Areas are undulating or gently rolling. These soils originally were prairie. Houston clay was mapped.

As mapped in Nevada County, the Crockett soils seem to represent a transitional stage between the Houston, Prescott, and Nevada soils. There is considerable variation from place to place; that is, a spotted soil condition. The surface soil of the darker spots is dark brown or black. The subsurface layer is brown or yellowish-brown, sticky, plastic clay, and the subsoil is yellowish or greenish-yellow, sticky clay mottled with some gray or brownish gray. There are more mottles in the subsoil of spots which are not so dark colored at the surface. The mottling increases with depth. Black iron concretions, chert gravel, and mounds are not uncommon in these soils as mapped in Nevada County. Crockett clay was mapped.

The surface soils of the Prescott soils are light brown or grayish brown and the subsurface layers are lighter colored. Some brownish-gray mottles are present in places. The subsoils are heavy gray or bluish-gray plastic clay mottled somewhat with brown. Brownish and black concretions are present on the surface and throughout the soil. Chert gravel is also present in some places. The surface is undulating. The surface drainage is fair but the underdrainage is poor. Sandy dome-shaped mounds are scattered over the surface. Prescott silty clay loam was mapped.

The surface soils of the Nevada soils are gray, brownish gray, or grayish brown. The lumps present are easily crushed in the hand. The subsurface layer is as heavy as or heavier than the surface layer and is commonly yellowish brown or yellow. Some gray mottles are present in places. This layer grades into yellowish-gray clay, mottled somewhat with red. The mottling increases rapidly with depth, to the heavy, sticky clay, mottled red, gray, and yellow, the red becoming predominant downward. This red mottled layer is from 24 to 30 inches thick and is underlain by olive-gray clay with some yellow mottling. At a depth of about 6 feet grayish or olive-colored clay and partly decomposed shale are present. Dome-shaped sandy mounds are a surface feature in places. Black and brownish concretions are common. The Nevada soils are prairie soils and have flat or undulating surfaces. The underdrainage is only fairly well established. Nevada silty clay loam was mapped.

The Kirvin soils vary from grayish brown to reddish brown in the surface layer, which is only about 3 inches thick. The subsurface layer is commonly of yellowish-brown or reddish friable material. This grades into moderately stiff red clay, mottled more or less with yellow and some gray. The mottling increases with depth. Large iron concretions or fragments of concretions are present on the surface and throughout the soil. These fragments are sufficiently abundant near a depth of 3 feet to make boring almost impossible. The surface configuration varies from undulating to sharply rolling.

These soils were originally forested. Kirvin fine sandy loam was mapped in Nevada County.

The surface soils of members of the Greenville series vary from brown to reddish brown. They are mellow and friable. The subsoils are red, friable sandy clay or sandy clay loam, which may be moderately compact at a depth of 30 or 40 inches. Mottles of red and reddish yellow occur near a depth of 3 feet in places. The relief is rolling. Greenville fine sandy loam was mapped in this county.

The Kalmia series includes second-bottom stream-terrace soils having grayish surface soils and yellow, friable subsoils. Drainage is fairly good but in the lower areas some gray mottles occur 2 or 3 feet below the surface. In these soils, as a rule, the water table is nearer the surface than in the Norfolk soils, which they resemble, and gray mottles are reached at a slight depth. Kalmia fine sandy loam was mapped.

The Cahaba soils also occur on old-alluvial terraces. They rather closely resemble the Ruston soils but generally have more brownish surface soils and stiffer subsoils. The water table is not, as a rule, so deep as in the Ruston soils. Cahaba fine sandy loam was the only member of the Cahaba series mapped in Nevada County.

The Amite series includes the old-alluvial terrace soils which closely resemble the Greenville soils but have rather stiffer subsoils. Amite fine sandy loam was mapped.

The Myatt soils are old-alluvial terrace soils having grayish surface soils and mottled light-gray and yellowish subsoils. The surface layer is gray or grayish brown and is from 2 to 4 inches thick. The subsurface layer is gray and friable. Iron concretions are common in the soils of this series. The Myatt soils are flat and are mostly poorly drained. They are forested. Myatt very fine sandy loam was mapped.

The Ochlockonee soils are recent-alluvial soils of which the surface layers, to a depth of 3 or 4 inches, are brown and friable. The subsurface layers are lighter brown and of the same or slightly heavier texture. They grade beneath into yellow material, which, in turn, grades into mottled yellowish and grayish material, containing some brownish mottles which may represent embryonic iron concretions. The gray color gradually increases with depth, and at a depth of 5 or 6 feet the material is gray or bluish-gray clay. The drainage is good, except in time of overflows. Ochlockonee silt loam, Ochlockonee silty clay loam, and Ochlockonee fine sandy loam were mapped.

The surface soils of members of the Bibb series, to a depth of 3 or 4 inches, are distinctly grayish or mottled gray and rust brown. The subsurface layers vary from gray to yellowish gray and are commonly mottled with yellow or yellowish brown. The subsoils are mottled gray and yellow, with some yellowish brown in places, and are ordinarily heavier than the surface soils. The gray becomes more pronounced with depth, and brown iron concretions are not uncommon. The material below a depth of about 2 feet is compact and impervious, even where the texture is not heavier than silt loam. These soils occur in the first bottoms of streams and are very poorly drained. Bibb clay, Bibb silt loam, and Bibb very fine sandy loam were mapped.

The Catalpa soils are calcareous first-bottom soils including in their composition much material washed from the Houston and

Crockett soils of the uplands. The surface soils are brown and the subsurface layers are lighter-brown clay. The subsoils are brown or yellowish-brown, sticky, plastic clay, containing some lime. Catalpa clay was mapped in this county.

In the following pages of this report the different soils of the county are described in detail and their agricultural importance is discussed; their distribution is shown on the accompanying soil map; and their acreage and proportionate extent are shown in Table 3.

TABLE 3.—Acreage and proportionate extent of soils mapped in Nevada County, Ark.

Type of soil	Acres	Per cent	Type of soil	Acres	Per cent
Ruston fine sandy loam.....	96,960	} 25.2	Crockett clay.....	2,560	0.7
Smooth phase.....	3,008		Prescott silty clay loam.....	960	.2
Ruston gravelly fine sandy loam..	1,472	.4	Nevada silty clay loam.....	7,552	1.9
Ruston very fine sandy loam.....	2,880	.7	Kirvin fine sandy loam.....	43,520	11.0
Ruston loamy fine sand.....	2,560	.7	Greenville fine sandy loam.....	1,152	.3
Susquehanna silty clay loam.....	11,200	2.8	Kalmia fine sandy loam.....	11,200	2.8
Susquehanna silt loam.....	4,672	1.2	Cababa fine sandy loam.....	8,256	2.1
Susquehanna very fine sandy loam.	3,584	.9	Arnite fine sandy loam.....	1,920	.5
Susquehanna fine sandy loam.....	14,848	3.7	Myatt very fine sandy loam.....	22,464	5.7
Orangeburg fine sandy loam.....	10,496	2.6	Ochlockonee silt loam.....	10,176	2.6
Luverne fine sandy loam.....	5,632	1.4	Ochlockonee silty clay loam.....	6,208	1.6
Caddo fine sandy loam.....	32,000	8.1	Ochlockonee fine sandy loam.....	4,672	1.2
Caddo very fine sandy loam.....	3,520	.9	Bibb clay.....	9,856	2.5
Caddo silt loam.....	448	.1	Bibb silt loam.....	4,736	1.2
Norfolk fine sand.....	6,912	1.7	Bibb very fine sandy loam.....	43,008	10.8
Thomasville gravelly very fine sandy loam.....	4,928	} 3.7	Catalpa clay.....	1,728	.4
Slope phase.....	10,048				
Houston clay.....	1,664	.4	Total.....	396,800	

RUSTON FINE SANDY LOAM

Ruston fine sandy loam, in forested areas, has a surface layer 2 or 3 inches thick of brownish-gray or light-brown friable fine sandy loam. This grades into lighter-brown or brownish-yellow fine sandy loam of about the same structure. Below a depth ranging from about 4 to 10 inches is yellow or slightly brownish-yellow fine sandy loam. At a depth varying from 18 to 24 inches buff, reddish-yellow, or yellowish-red friable, granular fine sandy clay occurs. This layer in many places continues to a depth of 3 or more feet.

In this county a layer, from 2 to 8 inches thick, of mottled red and gray sandy clay is present in many places near a depth of 3 feet. This mottled layer seems to be much more friable than the layer immediately above. Under cultivation the surface soil becomes lighter in color. The brown layer is generally deepest in the more sandy areas and here also the color more nearly approaches red. Such areas are found between Bodcaw and Falcon, east of Carolina School, and between Cypress and Caney Creeks north of Hopewell School. In areas in the vicinity of Bluff City and south almost to the head of Cypress Creek, the surface soil may be as much as 2 feet thick. In a few places the sandy clay layer is lacking. Soil like this represents included areas of Ruston loamy fine sand. Areas in the south-eastern corner of the county have a uniformly heavier clay subsoil, and those southeast of Pleasant Hill School range in texture to very fine sandy loam. Areas associated with Orangeburg fine sandy loam between Bodcaw and Falcon and east of Carolina School have a coarser-textured surface soil and a redder and more friable sandy

clay subsoil, and really are an inclusion of Ruston sandy loam. The area mapped north of Wilson Creek resembles the slope phase of Thomasville gravelly very fine sandy loam. Small areas of the Caddo, Norfolk, and Orangeburg soils are also included in mapped areas of this soil.

On the whole, Ruston fine sandy loam is probably one of the most important soils in the county. Drainage is good, and the subsoil is sufficiently well developed to be retentive of moisture and fertilizer.

This soil occurs extensively throughout the county south and east of Terre Rouge Creek. Areas range from undulating to almost hilly. The rougher land occurs mostly in the region east of Caney Creek. Some of the steeper slopes gully and wash considerably during the heavy spring rains, but erosion is prevented to some extent by terracing. Some farmers follow the practice of changing the terraces every year, but others change them only every four or five years.

The principal crops grown on this soil are cotton and corn. Corn yields from 10 to 15 bushels, according to local estimates, and cotton from one-fourth to one-third bale to the acre. The average application of fertilizer is about 200 pounds to the acre for cotton and usually less for corn. Other crops which are grown to some extent and which do well are radishes, watermelons, cantaloupes, peanuts, and sweet potatoes. Radishes and cantaloupes are grown in the vicinity of Midway, but not very extensively elsewhere because of poor transportation facilities. Some sweet potatoes and peanuts are grown for market. A few small peach orchards, most of them near Bluff City, are on this soil. Cowpeas and soybeans do well.

This soil would be much benefited by the application of green manure and barnyard manure and by the more general practice of rotations including legumes.

The current value of this land ranges from \$8 to \$40 an acre, depending on the location and improvements.

Ruston fine sandy loam, smooth phase.—Ruston fine sandy loam, smooth phase, does not differ materially from typical Ruston fine sandy loam. It consists of grayish-brown loamy fine sand or fine sandy loam which grades, at a depth of 6 or 8 inches, into pale-yellow fine sandy loam which, at a depth of 12 or 15 inches, grades into yellowish-red or reddish-yellow, friable fine sandy clay. In places the upper part of the subsoil is yellowish red and the lower part is reddish yellow. Gray and yellow mottles are not so pronounced near a depth of 3 feet as in the typical soil. Small areas of Caddo fine sandy loam and of Norfolk fine sandy loam are included, as are also some eroded spots having a reddish surface soil. These patches were all too small to warrant separation on the soil map.

This soil occurs principally in that part of the county extending from the vicinity of Boughton to Terre Rouge Creek. It has the appearance of an old eroded terrace. One small area is mapped south of Lackland Springs Church on Caney Creek.

As a whole the smooth phase of Ruston fine sandy loam is a little more desirable than the typical soil, owing to its more favorable surface features. It is adapted to the same crops as the typical soil and gives about the same yields. Between 60 and 70 per cent is cultivated.

RUSTON GRAVELLY FINE SANDY LOAM

Ruston gravelly fine sandy loam differs from Ruston fine sandy loam principally in having a slightly darker surface soil and a higher gravel content. The surface layer is commonly brown fine sandy loam. It is underlain by a lighter-brown fine sandy loam subsurface layer which grades, at a depth varying from 8 to 12 inches, into yellowish-brown or reddish-yellow heavy fine sandy loam which, at a depth varying from 16 to 20 inches, passes into friable or granular yellowish-red fine sandy clay in which the color tends toward reddish brown with increasing depth. At a depth varying from 26 to 32 inches some faint mottling of gray and yellow occurs in many places. The mottled layer is usually more easily crumbled than the rest of the soil.

Some included areas, such as those on lower slopes just above Caddo fine sandy loam, consist of brown fine sandy loam underlain, at a depth of about 8 inches, by yellowish-red or dull-red friable fine sandy clay which passes, at a depth of about 2 feet, into reddish-yellow friable fine sandy clay which, in turn, at a depth of about 30 inches, is underlain by friable, yellow fine sandy clay mottled somewhat with gray and red. Chert gravel occurs throughout the soil and on the surface. The fine sandy clay layer locally varies greatly, ranging from very friable, reddish-yellow fine sandy clay to red, rather heavy, slightly plastic fine sandy clay resembling the Susquehanna soils. This last variation is a rather close approach to the Cuthbert soils found in various parts of the coastal plain region.

This soil, for the most part, occupies stream slopes. It occurs mostly west of Boughton and about 6 miles east of Prescott, where the upland breaks away to the terrace formed by Terre Rouge Creek and Little Missouri River. Another small area is 2 miles west of Dewodys Store. The soil ranks well in productiveness, but some excessively gravelly areas are difficult to manage. Where the gravel is not too coarse it makes good road material.

RUSTON VERY FINE SANDY LOAM

Ruston very fine sandy loam has a light-brown very fine sandy loam surface layer, from 5 to 8 inches thick, underlain by yellow or pale-yellow very fine sandy loam continuing to a depth of 12 or 14 inches where friable, granular, reddish-yellow or yellowish-red fine sandy clay occurs. This layer is commonly heavier in the lower part than in the upper, and in many places at a depth of about 30 inches reddish-yellow and yellow mottles, which may be accompanied by iron concretions, are present. Iron concretions and fragments of concretions may also occur on the surface and throughout the entire soil. In this respect some of the areas resemble the Kirvin soils. In some patches the surface soil is silt loam. The subsoil is uniformly heavier and redder than that of Ruston fine sandy loam. In the lower 6 or 8 inch section of the subsoil in the area 3 miles southwest of Glenville the material is practically the same as the subsoil of the Susquehanna soils.

The greater part of this soil occurs about 4 miles southwest of Sutton, but smaller areas are southwest, east, and southeast of Glenville. For the most part the surface is nearly level or undulating.

This soil is slightly more productive than Ruston fine sandy loam and is more highly prized. It is adapted to the same crops as Ruston fine sandy loam, and most of it is under cultivation.

RUSTON LOAMY FINE SAND

The surface soil of Ruston loamy fine sand, to a depth varying from 3 to 5 inches, is brown or brownish-gray loamy fine sand. This is underlain by brownish-yellow or yellow loamy fine sand or loose fine sand which, at a depth varying from 20 to 28 inches, grades into reddish-yellow or yellowish-red fine sand. This lower layer contains a little clay, and in some places sandy clay is present within a depth of 3 feet. In other areas the reddish material is barely reached within this depth. This soil blows to some extent during heavy winds.

Included with mapped areas of this soil are some patches of Orangeburg loamy fine sand consisting of grayish-brown or brown loamy fine sand underlain, at a depth varying from 4 to 7 inches, by lighter-colored loamy fine sand. At a depth ranging from 14 to 24 inches this grades into reddish-brown loamy fine sand containing a small quantity of clay. Sandy friable clay loam is present in places at a depth of about 3 feet.

For the most part Ruston loamy fine sand occurs on undulating areas on the divides. Scattered small areas are in the southern and eastern parts of the county, the principal areas being south of Bodcaw and in the vicinity of Carolina School. For a sandy soil this soil is considered very good, much better than Norfolk sand. It is not, however, considered so valuable as the other Ruston soils. Cotton, some corn, peas, peanuts, and other crops are grown with very good results. Most of the soil is under cultivation.

SUSQUEHANNA SILTY CLAY LOAM

Susquehanna silty clay loam in virgin areas has a 2-inch to 4-inch surface layer of brown or yellowish-brown silty clay loam, which grades into lighter-brown or brownish-yellow plastic silty clay loam slightly mottled with red and bluish gray. At a depth ranging from 8 to 22 inches this material grades into red or brownish-red, heavy plastic clay mottled with gray, bluish gray, and yellow. The grayish mottles increase with depth, and in many places gray becomes the predominating color in the lower part of the subsoil, the brighter colors appearing as mottles. The yellow subsurface layer is commonly thicker in areas which more nearly approach in character the silt loam soil.

Dome-shaped mounds of lighter-textured material, about a rod in diameter, are found on this soil where it is associated with the Thomasville, Prescott, or Nevada soils. In these mounds the heavy, plastic mottled clay subsoil occurs at a greater depth than typical. Some of the mounds consist of yellowish-brown silt loam which grades, at a depth of about 12 inches, into pale-yellow silty clay loam, underlain by grayish-yellow or mottled pale-yellow and gray silty clay loam containing some rust-brown concretions and some chert gravel. One area in which the mounds are well developed is 2 miles southwest of Prescott. Small, rounded chert gravel are found in places in the heavy clay subsoil.

The largest areas of Susquehanna silty clay loam are north and west of Prescott and southeast of Emmet, and small areas are south and east of Prescott.

As a whole, this soil is not considered so valuable as the fine sandy loam of the series, as it is much harder to manage and is not so well drained. Areas having the shallower surface soil are the least desirable, as they are affected more by extreme drought. The leading crops are cotton and corn. Cotton yields from one-sixth to one-fourth bale to the acre and corn from 8 to 15 bushels. This soil is retentive of fertilizer, as it has a heavy subsoil. Deep plowing and the application of green and barnyard manures are especially beneficial. The greater part of the soil is cleared and used for crops and pasture land. The forested areas support a growth of post oak, hickory, some pine, red haw, blackjack oak, and dogwood. On the mounds sparkleberry (or winter huckleberry) is common. Although not so highly prized as the Ruston soils, this soil has about the same range in price.

SUSQUEHANNA SILT LOAM

Virgin Susquehanna silt loam differs from Susquehanna silty clay loam chiefly in the surface soil, which is brown or brownish-gray silt loam from 1 to 5 inches thick. The subsurface layer is pale-yellow, yellow, or slightly reddish-yellow silty clay loam. It is underlain by the characteristic heavy, plastic, red clay, mottled gray and yellow. Gray or bluish gray commonly becomes the predominant color near a depth of 3 feet. Faint mottling of gray is observed in places in the subsurface soil.

A sample of this soil taken $2\frac{1}{4}$ miles north and one-half mile east of Prescott has a grayish-brown or brownish-gray silt loam surface soil about 1 inch thick over pale-yellow silt loam or heavy silt loam with faint mottling of light bluish gray. This grades, at a depth of about 8 or 10 inches, into pale-yellow silty clay loam with light bluish-gray mottles, and this in turn grades, at a depth of about 12 or 14 inches, into mottled pale-yellow and bluish-gray heavy plastic clay. At a depth varying from 14 to 22 inches the heavy clay loam becomes mottled red and bluish gray and grades, at a depth of about 28 or 30 inches, into mottled bluish-gray, yellow, and pale-yellow plastic heavy clay.

Taken all together this soil is more desirable than Susquehanna silty clay loam, as it is more easily managed and is better drained. The same crops are grown, and the yields are about the same.

The largest area of Susquehanna silt loam mapped is southeast of Emmet along Terre Rouge Creek, another important area is east of Prescott, and small patches are scattered throughout the county between Terre Rouge and Wilson Creeks. The relief varies from comparatively flat to rolling. In some places the surface soil has been washed off, exposing the heavy clay subsoil. Most of these spots are very small, but where large enough they were mapped with Susquehanna silty clay loam. Gravel is present in places. A few dome-shaped mounds like those occurring on Susquehanna silty clay loam are present on this soil. Some of these consist of brown very fine sandy loam or Caddo very fine sandy loam.

Areas of Susquehanna silt loam are flat and wet for long periods. This is a cold soil and, like the silty clay loam of the series, is apt

to bake. Baking can be prevented by the addition of lime and manure, by the growing of legumes, and by deep plowing. The leading crops are cotton and corn.

Shortleaf pine and post oak are the principal trees of the forested areas. Some dogwood and an occasional hickory tree are present. Sparkleberry is present on many of the mounds.

SUSQUEHANNA VERY FINE SANDY LOAM

The surface soil of Susquehanna very fine sandy loam in the virgin state is light-brown, yellowish-brown, or yellowish-gray, friable, heavy very fine sandy loam from 2 to 4 inches thick. The subsurface soil is very fine sandy loam, usually pale yellow with some light-gray or light bluish-gray mottles and in places with some reddish-yellow mottles. Below, at a depth of 6 or 8 inches, is fine sandy clay loam mottled yellow and light gray or light bluish gray, with red mottling abruptly appearing below. At a depth of about 14 inches fine sandy clay mottled yellow, light bluish gray, and red is reached, and this at a depth varying from 24 to 28 inches passes into heavy plastic clay mottled red and bluish gray with some yellow. Locally there is much bluish gray and but little red in the lower part of the subsoil. Iron concretions are common. The soil, as described above, is rather deeper than the average.

Most of this soil occurs in the southeastern corner of the county. Some is mapped northwest of Prescott and some between Laneburg and Emmet. The total area is not extensive, and probably not more than 75 per cent of the soil is under cultivation. It is considered a desirable soil, as it responds to fertilizers and is rather easily managed. It is adapted to the crops common to the region. The chief objection to the soil is that it warms up slowly in the spring because of imperfect underdrainage. The crops, methods of cultivation, and system of improving Susquehanna fine sandy loam apply also to this soil.

SUSQUEHANNA FINE SANDY LOAM

The surface soil of Susquehanna fine sandy loam is yellowish-gray or light brownish-gray fine sandy loam from 4 to 8 inches thick. This grades into pale-yellow or yellow fine sandy loam or loamy fine sand which in places contains some gray mottles. Below a depth varying from 12 to 20 inches is the customary red or brownish-red, heavy, plastic clay, mottled with gray or bluish gray and some yellow.

In many places pale-yellow fine sandy clay occurs between depths of 14 inches and about 2 feet and is underlain by plastic clay mottled with gray or yellow. In a few places the surface soil, to a depth of 4 or 5 inches, is fine sand underlain by reddish-yellow loamy fine sand which grades, at a depth of about 12 inches, into reddish-yellow fine sandy loam, underlain at a depth of about 16 inches by red, friable, fine sandy clay. Below a depth of about 20 inches is red, heavy clay mottled with yellow or bluish gray or both.

This soil is probably the most favored of all the Susquehanna soils mapped. It is easily cultivated, is adapted to the crops commonly grown, is retentive of fertilizers, and gives good yields.

Rounded chert gravel and iron concretions are common on this soil. In the areas north of Lackland Springs Church, northwest of Prescott, and near Morning Star Church considerable gravel is present. These

areas, with those in the extreme southeastern part of the county, comprise the greater part of this soil, but other areas are scattered throughout the county.

The flatter areas have the poorer surface drainage and usually lighter-colored surface and subsurface soils, and the better-drained areas are darker. The relief varies from undulating to strongly rolling.

Oak, hickory, and shortleaf pine are the principal trees. Probably not more than half this soil is cleared and used regularly for farming. It is regarded as moderately productive and responds readily to good management, such as rotations including legumes, and the addition of manure. Corn and cotton are the leading crops, and yields average about one-fourth bale to the acre of cotton and between 10 and 20 bushels of corn. Commercial fertilizers are commonly used on these crops. The steep or more rolling areas wash badly, but this can be prevented to some extent by terracing.

This soil varies greatly in price, depending on the location and improvements. It compares favorably with the Ruston soils.

ORANGEBURG FINE SANDY LOAM

The surface 3 to 6 inch layer of Orangeburg fine sandy loam is grayish-brown or brown fine sandy loam or loamy fine sand. This layer is underlain by brownish-yellow or yellow fine sandy loam which, at a depth of 10 or 12 inches, is underlain by reddish-yellow or yellowish-red friable fine sandy clay which grades, at a depth varying from 12 to 20 inches, into red or bright-red, friable, medium-granular fine sandy clay. The texture of the surface soil is somewhat coarser than that of most of the Ruston fine sandy loam. Some gravel and iron concretions are found in many places on the surface and through the soil.

Included with this soil in mapping are some areas which in characteristics closely approach Ruston fine sandy loam and others which approach Orangeburg loamy fine sand. Some areas of Orangeburg gravelly fine sandy loam on ridges between the upland and terrace soils have also been included. In these the surface soil is brown or brownish-gray gravelly fine sandy loam from 6 to 10 inches thick, and the subsurface layer is brownish-yellow gravelly fine sandy loam. Below a depth ranging from about 12 to 18 inches is friable red gravelly clay loam. The gravel is bedded and may continue to a depth of several feet. It is used to some extent for road surfacing.

The largest areas of Orangeburg fine sandy loam are in the vicinity of Bodcaw, Falcon, Carolina School, and Laneburg, and northwest of Boughton. Other areas are scattered throughout the county. Probably 80 or 90 per cent of the soil is under cultivation. It is considered one of the better soils of the region.

Areas of this soil are undulating or rolling, and terracing is required in the rougher places to prevent erosion of the loose upper soil. The soil is easily managed and is considered slightly more productive than Ruston fine sandy loam.

Cotton, the leading crop on this soil, yields about one-fourth bale to the acre. Corn is grown for home use. Field peas, sweet potatoes,

and truck crops do well, but markets are too remote for these crops to be profitably grown at present.

Orangeburg fine sandy loam is valued more highly than the Ruston soils in the same vicinity.

LUVERNE FINE SANDY LOAM

In forested areas, the surface soil of Luverne fine sandy loam consists of light-brown or brown, friable fine sandy loam 4 or 5 inches thick. The subsurface layer varies from pale-yellow to reddish-yellow fine sandy loam, the lighter-colored material occurring with the lighter-colored surface soil. Below a depth varying from 12 to 16 inches is friable, red, medium-granular fine sandy clay. This crumbles with slight pressure when dry, and when wet it shows but faint plasticity. At a depth varying from 20 to 22 inches some compaction or hardness is observed in dry seasons, with more noticeable plasticity below. Beneath a depth of 28 or 30 inches is stiffer red fine sandy clay showing a little yellow splotching. Loosened fragments of this material are friable, but in dry seasons the soil in places is very hard. Iron concretions and fragments are scattered over the surface and throughout the soil. Some included areas consist of Kirvin fine sandy loam.

The surface soil of Luverne fine sandy loam is uniformly darker and contains more fine material than that of Orangeburg fine sandy loam. This soil is better adapted to cotton and corn than are the loose, sandy soils. The surface is typically rolling, necessitating terracing to prevent erosion. Some areas are hilly. The soil is associated mostly with the Kirvin soils south and southwest of Sutton and west of Bluff City. Between 60 and 75 per cent of the soil is cultivated. It is very desirable, is considered stronger than other fine sandy loams, and is as easily managed.

Pine, hickory, and oak are the principal trees in forested areas.

CADDO FINE SANDY LOAM

In forested areas, Caddo fine sandy loam consists of light-brown or yellowish-gray, friable, fine sandy loam from 2 to 4 inches thick, underlain by pale-yellow fine sandy loam which, at a depth varying from 8 to 12 inches, grades into yellow, friable fine sandy clay underlain, at a depth of about 2 feet, by yellow, friable fine sandy clay or heavy fine sandy loam mottled with light gray or bluish gray. Between depths of 30 and 40 inches, the material is commonly more or less compact and is mottled bluish gray and yellow. Small black concretions are generally present from the surface downward. On some flats the soil begins as mottled light-gray, rust-brown, and yellowish-brown very fine sandy loam and passes, at a depth of 2 or 3 inches, into pale-yellow heavy fine sandy loam mottled with light bluish gray. This grades, at a depth varying from 12 to 16 inches, into pale-yellow fine sandy clay underlain, at a depth of 30 or 40 inches, by bluish-gray compact fine sandy clay or fine sandy loam mottled with yellow and containing black concretions throughout. Dome-shaped mounds of brown fine sandy loam or very fine sandy loam, with yellow or reddish-yellow fine sandy clay mottled in places with gray at a depth of about 30 inches, are present.

Because of their small extent, several areas of Norfolk very fine sandy loam have been included in mapping with Caddo fine sandy loam. These areas consist of yellowish-gray or pale-yellow friable fine sandy loam underlain by friable yellow fine sandy clay which commonly contains some gray or bluish-gray mottles near a depth of 3 feet. These areas occur on slopes or well-drained flat areas. The soil is considered more desirable than Caddo fine sandy loam, but not so desirable as the Ruston or Orangeburg soils.

North of Terre Rouge Creek this soil occupies flats and slopes. Surface drainage is poor, and seepage occurs in places. Most of the mounds have a deeper and darker surface soil than typical. Where they occupy the greater part of the surface the intervening areas have a darker surface soil than typical.

Areas of this soil are scattered throughout the county, some of the larger areas occurring northwest, north, and east of Prescott and in the vicinity of Lackland Springs Church. Probably not more than 20 or 25 per cent of the soil is cultivated. Some of it is used as pasture or meadowland, and more of it could be used advantageously for those purposes. It is not so highly prized as the Orangeburg and Ruston soils. On the better-drained areas, fair yields of cotton, corn, and other crops are obtained.

On account of its open structure, this soil is not so retentive of fertilizer as the Ruston and Orangeburg soils. The tree growth consists of shortleaf pine, gum, and oak.

CADDO VERY FINE SANDY LOAM

The virgin surface soil of Caddo very fine sandy loam, to a depth ranging from 3 to 5 inches, varies from brownish-gray to yellowish-gray or gray very fine sandy loam, mottled in places with brown and yellow. The subsurface soil is commonly pale-yellow or grayish-yellow fine sandy loam mottled with gray or bluish gray. Below a depth varying from 10 to 18 inches is mottled yellow, gray, and brownish, friable fine sandy clay. Small black and brownish concretions are common on the surface and throughout the soil.

Most of this soil is timbered or used for pasture land, but when cultivated it is managed in about the same way as the fine sandy loam of the series. The largest area is southwest of Sutton. Dome-shaped mounds like those on Caddo fine sandy loam occur on this soil.

Caddo very fine sandy loam occurs chiefly in the flat areas or on low or gentle slopes, and underdrainage is poor. Most of the land is seepy and wet throughout the winter and spring months. Post oak, hickory, sweet gum, and pine are the common forest trees.

CADDO SILT LOAM

Caddo silt loam is very similar to Caddo very fine sandy loam. The surface soil, to a depth varying from 3 to 6 inches, is brownish silt loam or very fine sandy loam mottled with yellow and brown. It is underlain by yellow silt loam mottled with gray and some reddish brown. Below a depth varying from about 16 to 20 inches is gray silt mottled with gray and yellow, and below 36 inches is bluish-gray fairly compact material mottled yellow and reddish yellow. Concretions occur on the surface and through the soil.

Areas of Caddo silt loam are flat and poorly drained. Less than one-half the soil is cultivated. The yields are about equal to those on Caddo fine sandy loam, and the two soils are managed in much the same way.

NORFOLK FINE SAND

The surface soil of Norfolk fine sand is brownish-gray loose fine sand from 3 to 6 inches thick. This is underlain by yellow or pale-yellow loose fine sand which ranges in thickness from 3 feet to as much as 15 feet. In some places a loamy material occurs at a depth of about 34 inches.

Small areas of this soil are on ridges in the southern and eastern parts of the county, but the greater part of it is in the vicinity of Bluff City and Ebenezer Church. One area is northeast of Bodcaw. The soil is not valued so highly as soils having a heavier subsoil closer to the surface, as it is not retentive of fertilizers and does not produce as good yields. It blows when dry and winds are heavy. It is best adapted to the production of peanuts, peas, sweet potatoes, melons, and truck crops, but it produces from one-fourth to one-third bale of cotton to the acre. Several small peach orchards are on it.

A system of soil management that would incorporate organic matter in the soil should be practiced on Norfolk fine sand.

THOMASVILLE GRAVELLY VERY FINE SANDY LOAM

The surface soil of Thomasville gravelly very fine sandy loam is deep-brown or reddish-brown gravelly very fine sandy loam from 5 to 12 inches thick. To a depth of a few inches the material is commonly darker than in the remainder of the layer. This layer is underlain by light-red or red friable gravelly fine sandy clay which crumbles with handling but which is rather compact in place. At a depth of about 20 inches this is underlain by pale-yellow or yellow gravelly compact fine sandy clay mottled with red or light gray. Black and rust-brown iron concretions are on the surface and throughout the soil. They are more abundant near a depth of 3 feet, forming a hardpan which continues to a depth varying from 4 to 8 feet. This hardpan contains some rounded chert gravel. Gray material predominates below a depth of 3 or 4 feet. The surface soil closely resembles that of the Greenville soils in color.

Some areas included with this soil in mapping consist of deep-brown very fine sandy loam underlain, at a depth varying from 10 to 14 inches, by yellow or yellowish-red silty clay loam which grades, at a depth of 16 or 18 inches, into yellow clay. This is underlain, at a depth of about 2 feet, by yellow clay containing an abundance of black concretions and constituting what is essentially a hardpan. Below a depth of 36 or 40 inches is mottled grayish-yellow, reddish-yellow, and red plastic clay containing fewer concretions than are present in the overlying material. In depressions the subsoil is pale-yellow clay containing very small concretions and some chert gravel. Concretions are present in most places from the surface down, but it is in the lower layer, above the plastic clay, that they are most abundant. Some included areas consist of reddish-brown very fine sandy loam underlain, at a depth of about 10 inches, by reddish-brown silty clay loam with an abundance of black concretions, which, in turn, is underlain at a depth of 12 or 14 inches by

yellow silty clay containing an abundance of black concretions. Between depths of 18 or 20 inches and 2 feet is red mottled material. The hardpan layer consists of mottled red and gray silty clay containing an abundance of black concretions. Below a depth of about 40 inches is stiff, mottled pale-yellow and light-gray clay containing fewer concretions than the overlying layer. Water frequently stands at the top of the hardpan layer.

This soil occupies the flatter parts of knolls and ridges, chiefly between Terre Rouge Creek and Prescott, but the relief is rolling. Surface drainage is good, but internal drainage may be rather poor. Cotton and corn are the principal crops. Cotton yields from one-fourth to one-half bale to the acre and corn from 10 to 20 bushels. Some garden vegetables, particularly radishes, are grown, as most of the soil is reasonably close to shipping points. Practically all the soil is cultivated.

This soil ranks close to the Houston and Crockett soils in value, selling at about \$50 an acre at the present time. It is considered one of the best soils in the county.

Thomasville gravelly very fine sandy loam, slope phase.—The surface soil of the slope phase of Thomasville gravelly very fine sandy loam is brown or reddish-brown very fine sandy loam from 10 to 14 inches thick. It is underlain by light reddish-yellow or yellow silty clay, containing black concretions in varying numbers. The reddish-brown very fine sandy loam layer commonly grades into silty clay before it passes into the yellowish layer. At a depth of 18 or 20 inches the subsoil becomes yellow or brownish-yellow silty clay mottled with gray and in some places with red and contains large quantities of black concretions and some chert gravel. Below this material is a hardpan of red and gray mottled silty clay, with a superabundance of black concretions. The hardpan varies greatly in depth and thickness. Below it the subsoil is yellow or gray mottled silty clay. Dome-shaped mounds of slightly lighter texture give the surface a billowy appearance.

This soil is much more extensive than the typical soil. It occupies slopes, principally on the north side of Terre Rouge Creek. It is considered almost as desirable as the typical soil and gives about the same yields. It is cultivated in the same manner, and the same crops are grown. During prolonged rainy periods the soil of this phase seems to be seepy or wetter than the typical soil, but it does not seem appreciably different during dry periods.

HOUSTON CLAY

The surface soil of Houston clay is dark-brown or black clay from 6 to 14 inches thick, sticky and plastic when wet and coarsely granular when dry. The surface dries to an ash color. The subsurface soil is light-brown or yellow sticky clay, which continues to a depth varying from about 10 to 20 inches. This layer is yellow or greenish-yellow sticky clay containing soft cream-colored lime and hard lime which becomes more abundant below a depth of 2 feet. The lime in places occurs as chalky material. The subsoil varies greatly in color within small areas but it is predominantly yellow or greenish yellow, with varying quantities of lime material. Fossil shells are associated with the soil. The surface soil may or may not be calca-

reous. Slight reddish mottles may occur in the subsoil near the boundary with the Susquehanna, Nevada, and Prescott soils.

Houston clay occurs chiefly on the slopes of streams. The greater part of it is mapped along Garland Creek, north and northwest of Prescott. A few small areas are west and southwest of Prescott. This soil is of small extent, but it is considered one of the best soils in the county. Cotton yields from one-half to three-fourths bale to the acre, corn 25 bushels, and alfalfa from 3 to 4 tons. Alfalfa is cut five or six times a year. Although this is naturally a fertile soil, its heavy texture makes it hard to work and if it is plowed too dry or too wet it will form clods. It is really a prairie soil, but some thorn, haw, and redbud grow on it.

The current value of this land varies but may be as much as \$90 an acre.

CROCKETT CLAY

The surface soil of Crockett clay varies from brown to black and is sticky when wet but crumbly when dry. The subsoil below a depth varying from 6 to 14 inches, is brown or greenish-brown sticky clay only a few inches thick. It grades into yellow or greenish-yellow, sticky, plastic clay containing a large quantity of lime, especially below a depth varying from 24 to 30 inches. Mottles of grayish brown or ash brown are common in the subsoil, becoming more pronounced in the lower part. Gravel is abundant in many places over the surface and through the soil. In many patches the surface soil is yellowish-brown clay having a greenish cast, and the subsoil is yellow or greenish-yellow plastic clay, showing some red and grayish mottling. The dark surface soil varies more widely in thickness than does that of Houston clay.

This soil occupies stream slopes, chiefly south of or along Garland Creek and other small streams west of the Missouri Pacific Railroad. Locally little or no distinction is made between this soil and Houston clay, both being considered black land. Small areas of Houston clay are included in mapped areas of Crockett clay. The two are valued at about the same price and give about the same crop yields. Crockett clay is adapted to the production of the staple crops, including wheat, oats, and alfalfa.

PRESCOTT SILTY CLAY LOAM

Prescott silty clay loam has a light-brown or grayish-brown silty clay loam surface soil from 6 to 14 inches thick, overlying lighter-brown or yellowish-brown silty clay, which contains some faint ash-gray mottles and some black concretions. Below a depth varying from 18 to 30 inches is heavy, plastic, bluish-gray clay with some rust-brown and brown mottling and numerous rust-brown and black concretions. In places the surface soil is mottled brown, rust-brown, and ash-gray silty clay loam, underlain by bluish-gray clay slightly mottled with rust brown. Numerous small rust-brown and black iron concretions occur from the surface down. The soil does not contain free carbonate of lime within 3 feet of the surface.

This is a prairie soil. Drainage is poor, and the soil in many places has a grayish cast and is mottled with gray. The greater part of the soil occurs about the heads of small streams in the vicinity of Prescott. Areas are undulating.

Cotton and corn are grown on this soil to some extent. Oats give fair returns. A considerable percentage is in pasture or meadow of native and Bermuda grasses.

NEVADA SILTY CLAY LOAM

Nevada silty clay loam has a brown or grayish-brown silty clay loam surface soil 6 or 8 inches thick. This grades into yellowish-brown or brownish-yellow, sticky, heavy clay which, at a depth varying from 10 to 18 inches, grades into yellow, sticky clay mottled faintly with red. The red tint increases with depth. Below a depth of 18 or 20 inches is sticky, plastic clay, mottled red, yellow, and gray or bluish gray. Concretions are abundant in most places. The red color disappears gradually below this layer and below a depth varying from 30 to 36 inches there is mottled, plastic, sticky brown clay. At a depth of about 4 feet the color of the clay changes to bluish gray or olive. The parent clay shale occurs near a depth of 6 feet. Chert gravel as much as 2 inches in diameter and dark iron concretions are common. In tested areas the soil ranged from a pH value of 5.5 in the surface layer to 5 in the dry, yellow subsoil. There are some included areas of silt loam and also patches of black soils near the boundary of Houston clay and Crockett clay.

Dome-shaped mounds are scattered over the areas, giving the land a billowy or hummocky appearance. These mounds are very numerous 1 mile north of Prescott. The soil on them consists, in part, of light-brown gravelly loam or clay loam which grades, at a depth of about 20 inches, into yellow clay loam or clay. This is underlain at a depth of about 30 inches, by yellow clay speckled with red. In places the surface is of a hog-wallow relief, that is, characterized by low hummocks and shallow irregular depressions.

This soil occurs chiefly around Prescott, occupying the broader divide between Terre Rouge, Garland, and Wilson Creeks. The areas are smooth or gently sloping, and surface drainage is only fair. Underdrainage is poor. The soil is wet during periods of prolonged rainfall but is more droughty than the Ruston and similar soils during extended dry periods.

This is a prairie soil. Fair results are obtained under the general system of agriculture. Oats do well, as do also wild grasses and Bermuda grass. Red clover does fairly well. Cotton produces from one-fourth to one-third bale to the acre, and corn from 15 to 25 bushels. From 200 to 300 pounds of fertilizer are used to the acre. Manure gives strikingly good results. Most of the land is in cultivation or is used for meadow.

The present value of Nevada silty clay loam ranges from about \$40 to \$80 an acre.

KIRVIN FINE SANDY LOAM

Kirvin fine sandy loam, in forested areas, has a yellowish-brown or grayish-brown fine sandy loam surface soil about 2 inches thick, underlain by pale-yellow or reddish-yellow fine sandy loam or heavy fine sandy loam, which, at a depth varying from 8 to 14 inches, passes into moderately friable and somewhat stiff reddish-yellow or red clay, in most places slightly sandy. This quickly grades in color to red and at a depth ranging from about 26 to 30 inches shows some splotching of yellow or limonite yellow and even of gray. This layer

is, as a rule, more easily crumbled in the hand than the red material above, which is somewhat plastic when moist but not so plastic as the subsoil of the Susquehanna soils. Ferruginous material, consisting of concretions and fragments of concretions or hard platy blocks of ferruginous sandstone, ranging in size from small to large, is commonly present from the surface down.

The surface soil varies considerably in thickness, in some places being only 6 or 8 inches thick above the red clay. Such areas are commonly more loamy and are darker colored, lacking the lighter-colored subsurface soil. Such areas are west of Brockmans Store and north and west of Bluff City. The clay subsoil in places shows more yellow than red, but has the same structural characteristics. Such areas occur chiefly on the lower, gentle slopes. On the narrower ridges some spots have a much redder subsoil, resembling that of Luverne fine sandy loam. Most of the steeper slopes and more highly dissected areas are redder than the broader and more gently sloping land.

Kirvin fine sandy loam is extensive in Nevada County. The largest areas extend from Cale to Sutton, through Rosston, and south along Little Bodcaw Creek. An important area is north and west of Bluff City, and smaller ones are scattered throughout the southern half of the county. Areas range from undulating to strongly rolling, the more rolling ones occurring along the steep stream slopes and more thoroughly dissected parts of the soil. Terracing is necessary to prevent most areas from eroding. Probably between 65 and 75 per cent of this soil is in cultivation. The more stony and rough areas are left in timber.

Kirvin fine sandy loam is considered one of the best soils in the county, as all crops do well on it. It is well adapted to truck growing. Cotton yields from one-fourth to one-half bale to the acre and corn from 15 to 25 bushels.

This soil could be improved by growing legumes and by applying barnyard and green manures. From 200 to 250 pounds of fertilizer are used to the acre for cotton, and corn when fertilized receives from about 100 to 150 pounds an acre. Sweet clover would probably grow well on the heavier spots, if sown on limed and inoculated ground.

The present value of this soil ranges from about \$10 to \$40 an acre. Most areas are from 10 to 20 miles from railroad shipping points.

GREENVILLE FINE SANDY LOAM

The surface soil of Greenville fine sandy loam is rich-brown or reddish-brown fine sandy loam from 6 to 10 inches thick. This layer is underlain by red or reddish-brown fine sandy clay loam, which, at a depth varying from 12 to 16 inches, grades into red, friable, crumbly fine sandy clay. The subsoil is ordinarily heavier and slightly more compact than the subsoil of the Orangeburg soils. Very little of this soil occurs in Nevada County, and most of it is spotted with Orangeburg fine sandy loam. The shallow patches are slightly heavier in texture, approaching fine sandy clay loam. Chert gravel is present in most places. Most of the areas mapped are in the vicinity of Boughton. The very gravelly spots are shown by gravel symbols. The area mapped 5 miles southeast of Rosston has a uniformly red or brownish-red surface soil and approaches fine sandy

clay loam. The subsoil in this area is heavier, and the soil is closely related to the Kirvin soils.

This soil is well adapted to the common crops of the county and to truck crops. Yields on it are about the same as on the Orangeburg and Kirvin soils. Sweet clover could possibly be grown if it were sown properly. Most of this soil is in cultivation.

KALMIA FINE SANDY LOAM

Kalmia fine sandy loam consists of grayish-brown or brownish-gray fine sandy loam underlain at a depth varying from 4 to 8 inches by pale-yellow fine sandy loam which gradually becomes heavier with depth and grades, at a depth varying from 12 to 24 inches, into yellow, friable fine sandy clay or heavy fine sandy loam. Some gray mottling is present near a depth of 3 feet in poorly drained areas. Some small elevated areas of the Cahaba soils and some depressed areas of the Myatt soils are included in mapped areas of this soil.

Kalmia fine sandy loam occurs on old alluvial terraces along the streams throughout the county. The most extensive areas are those along the river from the vicinity of Boughton to the county line. Other areas are 2 miles southeast of Emmet and 3 miles northeast of Laneburg. Areas mapped along the river between Terre Rouge and Caney Creeks are more sandy than typical, and the surface soil is deeper. East of Caney Creek the sandy clay subsoil is uniformly 30 inches thick. Samples obtained show a sandy section throughout or continuing 34 inches before the sandy clay occurred. The strip extending west from the vicinity of Cornelius Spring School is really a colluvial slope and has about the same soil profile as the area east of Caney Creek. Sand mounds are common in this area. Most of the better-drained slopes have the brighter-yellow subsoil. A few small patches of Kalmia sand, one of which is on Caney Creek on the Cale-Prescott road, were included with this soil in mapping.

Areas of this soil are flat. The drainage varies from fair to good. The soil occupies a position between the Cahaba and Myatt soils with respect to drainage. The areas mapped north of Wilson Creek are small and have an elevation varying from 6 to 10 feet above the large Myatt flat.

The greater part of this soil is in cultivation. The yields and kinds of crops grown are about the same as on Caddo fine sandy loam in the upland. A larger percentage of Kalmia soil than of the Norfolk is in cultivation.

CAHABA FINE SANDY LOAM

Virgin Cahaba fine sandy loam consists of brown or light-brown, mellow fine sandy loam or loamy fine sand 2 or 3 inches thick, overlying reddish-yellow, friable, heavy fine sandy loam which, at a depth varying from 12 to 30 inches, grades into buff-colored or yellowish-red, moderately friable fine sandy clay loam or fine sandy clay. The change to the sandy clay layer is commonly abrupt. The surface soil of the cultivated area is usually brownish gray or brownish yellow and is about 6 inches thick. Gray mottles characterize the lower part of the subsoil in many places.

This soil occurs on old alluvial terraces. The larger areas are along the larger streams, such as Terre Rouge and Caney Creeks and Little

Missouri River. Along Caney and Terre Rouge Creeks and other creeks it occurs chiefly as points or flats at the junction of the larger branches, or along the edge of the larger and extensive Myatt flats mapped near the mouths of these two large creeks. The edges of these flats are better drained, and this has allowed better oxidation, resulting in a brighter color. Areas mapped along Little Missouri River northwest of Boughton lie from 10 to 20 feet higher than the surrounding Myatt soil and at a little higher elevation than Kalmia fine sandy loam. Some areas too small to map have been included with the Myatt soil, and mapped areas of Cahaba fine sandy loam include small patches of Myatt fine sandy loam and Kalmia fine sandy loam. The areas of Cahaba fine sandy loam east of Terre Rouge Creek along the river do not have so much very fine sand in the surface soil as those west of the creek. The areas mapped north of Wilson Creek have some eroded spots closely associated with the included Amite soils. In the northeast corner of the county, close to the junction of Caney Creek and Little Missouri River, are two small areas of Cahaba fine sand which were included with the fine sandy loam in mapping. Level areas of Leaf silt loam have been included with Cahaba fine sandy loam because of their small extent. In these areas the surface soil is friable silt loam, from 5 to 8 inches thick, underlain by pale-yellow or yellow silty clay loam. The deeper part of the subsoil is yellowish fine sandy clay or clay mottled with red, gray, or bluish gray.

Areas of Cahaba fine sandy loam are undulating or gently sloping, and in only a few places is terracing necessary. This is a very good soil, producing good yields of both cotton and corn, to which it is mostly planted. Cotton yields from one-fourth to three-fourths bale to the acre. Field peas, sweet potatoes, peanuts, and garden truck should give good yields. Sweet clover was seen growing on some of the thinner areas of this soil and should succeed well, especially on the heavier spots. As a whole the soil is more desirable than the Ruston soils. Practically all of it is cultivated.

AMITE FINE SANDY LOAM

Amite fine sandy loam consists of reddish-brown or deep-brown, mellow fine sandy loam or heavy fine sandy loam underlain, at a depth varying from 6 to 10 inches, by red, friable, heavy fine sandy loam or fine sandy clay loam, which grades, at a depth varying from 14 to 20 inches, into red, friable fine sandy clay. Gravel is found on the surface in many places and in stratified beds through the soil. Yellow mottles occur in places below a depth of 30 inches. The gravelly areas are more red than those not containing gravel. Most of the areas are very spotted, with surface soils ranging from light brown to red.

This soil is mapped mostly on knolls or elevations surrounded by large areas of the Myatt soils, along Little Missouri River north of Wilson Creek. Other areas are near Boughton, between Terre Rouge and Caney Creeks, and northwest of Dewoodys Store. The areas are closely associated with the Cahaba soils but occupy a slightly more elevated position and occur more as narrow ridges or rounded areas about 15 feet above the Myatt soils. The drainage is good.

This soil is considered excellent and is not fertilized to any great extent. Cotton produces from one-half to three-fourths bale and

corn from 20 to 35 bushels to the acre. Truck crops do well. Sweet clover would probably do well if bacteria and lime were used. The chief drawback to the utilization of the soil is its location, as most of it is difficult of access during wet periods.

MYATT VERY FINE SANDY LOAM

The virgin surface soil of Myatt very fine sandy loam is grayish-brown or light-gray very fine sandy loam about 4 inches thick. It is underlain by light-gray very fine sandy loam mottled faintly with pale yellow, dark gray, and in places some rust brown. This either passes down into somewhat browner material or remains practically the same to a depth of 3 feet. In many places a compact layer 2 or 3 inches thick occurs at varying depths, commonly at a depth varying from 24 to 30 inches. A few concretions are found throughout the soil. Some small included areas of silt loam differ from the typical soil only in having a heavier texture and firmer structure.

Myatt very fine sandy loam is a terrace soil found along the larger streams. The largest areas are along Little Missouri River, and other areas are along Terre Rouge, Caney, Little Bodcaw, and Cypress Creeks. The largest single area, about 3 miles wide and extending east from the Hempstead County line almost to the mouth of Wilson Creek, is in Missouri and Boughton Townships. Other areas in Redland Township have the same relative position to Little Missouri River but are not so large and more closely approach fine sandy loam. Some small and lower spots have a silt surface soil and silty clay loam subsoil. Such patches are principally in Missouri and Boughton Townships along the small meandering streams. The higher patches throughout areas of this soil were mapped as Kalmia, Cahaba, and Amite soils.

As a whole, Myatt very fine sandy loam is poorly drained. Very little of the soil is cultivated. It is valued chiefly for pasture land and for timber production. It is forested with shortleaf pine, holly, sweet gum, and some oak.

OCHLOCKONEE SILT LOAM

The surface soil of Ochlockonee silt loam, to a depth varying from 4 to 10 inches, is dark-brown or brown silt loam with some rust-brown mottling. The subsoil is yellow or brownish-yellow, friable silty clay loam which is mottled, at a depth varying from 12 to 18 inches, with gray. The gray mottles increase with depth, and the deep subsoil in many places is olive-drab clay. Brown iron concretions are not uncommon. The soil was difficult to separate on the map from Bibb silt loam, and it includes spots of that soil.

Most of the Ochlockonee silt loam is mapped along Little Missouri River in the northwestern corner of the county. It is mostly flat with a gentle slope back from the river, bayous, and creek channels. Most areas nearer the stream channels have the browner color, deeper soil, and best drainage, and those back from the channels have shallower and lighter-colored surface soils with more mottles. The drainage is poorer, and overflows are more frequent in the back lands.

The better-drained areas are mostly used for such crops as corn and cotton, the former being the principal crop and yielding from 25 to 60 bushels to the acre. Cotton yields about one-half bale to the

acre. The more poorly drained areas are used for pasture land or are left in forest, which is composed of holly, ash, hackberry, red gum, sweet gum, black gum, hickory, various oaks, ironwood, elm, maple, cypress, and scattered pine. Wild cane (switch cane) grows luxuriantly in places and furnishes winter grazing for livestock. Supple-jack or "rattan" is an abundant vine. This is one of the most naturally fertile soils in the county.

Ochlockonee silt loam occupies a position several feet above the normal stream level. A large part of it could not be profitably utilized for cultivation unless it was leveed or drained, and it is very doubtful if this would pay.

OCHLOCKONEE SILTY CLAY LOAM

The surface soil of Ochlockonee silty clay loam is brown, moderately friable silty clay loam about 3 or 4 inches thick, overlying light-brown or grayish-brown silty clay loam which, at a depth varying from 9 to 14 inches, passes into yellowish-brown or yellow silty clay loam or silty clay. At a depth varying from 20 to 30 inches this grades into mottled yellow and bluish-gray plastic clay. In places mottles of rust brown occur in the surface soil and gray mottles at a depth of 12 inches.

Practically all this soil occurs as narrow strips along Terre Rouge Creek and little Missouri River in the northeastern part of the county. The surface is flat, broken only by sloughs and bayous. The soil adjacent to the sloughs, bayous, and the river is usually higher than that farther back and is less mottled and lighter in texture. That mapped along Terre Rouge Creek is very spotted, as it includes patches of both loam and silt loam. Most of the soil is subject to frequent overflows, and only the more elevated areas are favorable to cultivation.

This soil is used principally for grazing and for forestry. The forest growth is the same as on the silt loam of the same series. No doubt good yields could be obtained from this soil if it were cleared, leveed, and drained, but under present conditions the cost of such improvements would exceed the returns.

OCHLOCKONEE FINE SANDY LOAM

Ochlockonee fine sandy loam, as mapped, is variable in both texture and color. It consists of a brown or dark-brown, mellow, fine sandy loam from 5 to 10 inches thick, underlain by yellowish-brown fine sandy loam or heavy loam which continues to a depth ranging from 16 to 20 inches and grades into lighter-colored heavy loam or silt loam. Gray mottles are nearly everywhere present below a depth of 24 inches, and these become more conspicuous with depth. In many places thin layers of silt, 2 or 3 inches thick, occur in the soil. Mapped areas include small areas of Ochlockonee very fine sandy loam.

Most of this soil occurs along Little Missouri River and along the small streams where flood material is derived from the darker-colored upland soils. The principal areas are along the river east of Boughton and north of Bluff City.

Practically all of the soil mapped along the river is cultivated, as it occupies the higher positions and is fairly well drained. Areas on

the smaller streams are not so well drained, and probably not more than half of their area is cultivated.

Corn is grown almost exclusively on this soil, and yields vary from 25 to 50 bushels to the acre.

BIBB CLAY

The surface soil of Bibb clay is dark-gray or dark bluish-gray silty clay loam or silty clay, with some rust-brown mottling. This grades, at a depth ranging from 4 to 6 inches, into light-gray or bluish-gray plastic silty clay, showing some rust-brown and yellowish mottling. At a depth of about 18 or 20 inches plastic, gray silty clay mottled with yellow appears. The mottling tends to disappear with depth. Black concretions occur in many places on the surface and through the subsoil. Patches of Bibb silt loam and some small spots of the Ochlockonee soils were included in mapping.

Practically all of this soil occurs along Terre Rouge Creek. It is poorly drained, overflows are frequent, and the material is wet throughout a large part of the year. It is known as crawfish land and very little of it is cultivated. The pH value of this soil was 4.5 in the places tested. Red gum, sweet gum, black gum, holly, hickory, cypress, and various oaks are the principal trees. Some small pastures are cleared.

BIBB SILT LOAM

The surface soil of Bibb silt loam, to a depth of 2 or 3 inches, is light-brown or grayish-brown silt loam mottled with gray or bluish gray. The subsurface soil is gray silt loam mottled with some rust brown and yellow and commonly containing some brown and black concretions. At a depth varying from 8 to 18 inches gray, plastic silty clay, mottled with yellow and brown, appears. In some places the silt loam continues to a depth of 2 or more feet. This soil grades so gradually into the Ochlockonee soils that the boundary lines between the two soils are more or less arbitrary. As mapped, it includes patches of silty clay loam.

Most of this soil is mapped along Little Missouri River, on the lower and more poorly drained first-bottom lands. A few small areas occur along some of the smaller streams. Probably less than 5 per cent of the soil is in cultivation. It is wet and cold and is subject to frequent overflows. It does not produce so well as the better-drained Ochlockonee silt loam. Most of it is forested and used only for grazing. The same trees as are found on other bottom-land soils grow on this soil.

BIBB VERY FINE SANDY LOAM

The virgin or forested areas of Bibb very fine sandy loam have a dark-gray or brownish-gray, mellow very fine sandy loam surface layer about 2 inches thick, underlain by gray very fine sandy loam which, at a depth varying from about 6 to 10 inches, passes into light-gray very fine sandy loam, with a little yellow and some brown mottling. Below a depth varying from 14 to 18 inches mottled gray and yellow friable silty very fine sandy loam occurs. In some places the very fine sandy loam continues to a depth of 3 feet and in other places the lower part of the subsoil is either silty clay or contains thin layers of heavier material. Most of the soil has about the same

or slightly heavier texture in the subsoil than in the surface soil. In places the texture of included areas ranges to fine sandy loam.

Practically all of this soil is mapped along Little Bodcaw, Dorcheat, and Caney Creeks and their tributaries. It is all subject to overflow and is frequently under water. Some higher areas along Little Bodcaw Creek approach the Myatt soils in characteristics. Areas mapped on Dorcheat and Caney Creeks are often flooded for extended periods through the winter and spring months. Those mapped on Little Caney Creek southeast of Prescott are very spotted, having patches of Ochlockonee fine sandy loam and Ochlockonee silt loam throughout. Some areas along Caney Creek are decidedly spotted, varying from silt loam to fine sandy loam. Small knolls and patches of Ochlockonee soils are adjacent to the stream.

Practically none of this soil is under cultivation, owing to the poor drainage. It is left in forest, and livestock is allowed to graze on it. The chief tree growth is pine, sweet gum, red gum, black gum, holly, and various oaks, and some cypress grow along the streams and old stream channels. A few areas are cleared and used as pasture land, the logical use for this soil.

CATALPA CLAY

Catalpa clay consists of brown or dark-brown clay, 10 or 12 inches thick, underlain by lighter-brown or yellow, plastic silty clay, which in most places shows some mottling of gray or brown near a depth of 3 feet. The subsoil is calcareous and contains some lime concretions and chalky material. The soil varies considerably from place to place. Gravel occurs in places on the surface and through the soil. This soil occupies first bottoms along the small streams and is associated with Crockett clay and Houston clay. It is mapped exclusively between Wilson and Terre Rouge Creeks.

Some of this soil is cultivated and gives yields comparable to those obtained from Houston clay and Crockett clay. It is good cotton, corn, and alfalfa land, but owing to its position it is uncertain for crop production. It makes excellent meadow and pasture land.

SUMMARY

Nevada County is in the southwestern part of Arkansas and has an area of 620 square miles, or 396,800 acres. The relief varies from undulating in the northern part to rolling in the southwestern corner and strongly rolling in the eastern part. Surface drainage is well established, except in seeped areas and on broad terraces along Little Missouri River. The streams of the county drain into Little Missouri and Red Rivers.

The county was organized in 1871. The present population is 21,934, of which 87.7 per cent is rural. Prescott, the county seat, has a population of 2,691. A large proportion of the population is colored.

The county is not well supplied with transportation facilities. The main public highways are fairly well improved, and much interest is being manifested in them. The other roads are fairly well kept.

The climate is characterized by long summers and short winters. The average frost-free season is 226 days.

Cotton, the principal cash crop in the county makes average annual yields varying between one-fifth and one-fourth bale to the acre.

The acreage of corn is about equal to that of cotton, but the corn is grown principally for home use and for local sale. The yields are low. Oats, peanuts, sweet potatoes, melons, and garden vegetables are grown to some extent. The distance from shipping points prevents the growing of melons and truck crops on a commercial scale. Peaches and strawberries are the principal fruits. Dairy and poultry products are gaining rapidly in importance. Pork is the chief source of income from livestock.

The number of farms has doubled since 1889. The average farm contains 76 acres, with 39.8 acres of improved land. Only 51.5 per cent of the farms were operated by owners in 1920.

The soils mapped are those common in southwestern Arkansas. Practically all of them are deficient in organic matter and poor in the necessary plant foods. The soils mapped are classed in 20 soil series and include 32 soil types and 2 phases. Originally all of the soils were forested, except in a small area in the vicinity of and west of Prescott. The upland soils are classed in the Ruston, Susquehanna, Caddo, Houston, Thomasville, Crockett, Norfolk, Prescott, Nevada, Orangeburg, Luverne, Kirvin, and Greenville series; the terrace soils in the Kalmia, Cahaba, Amite, and Myatt series; and the alluvial or recent flood-plain soils in the Ochlockonee, Bibb, and Catalpa series.



[PUBLIC RESOLUTION—No. 9]

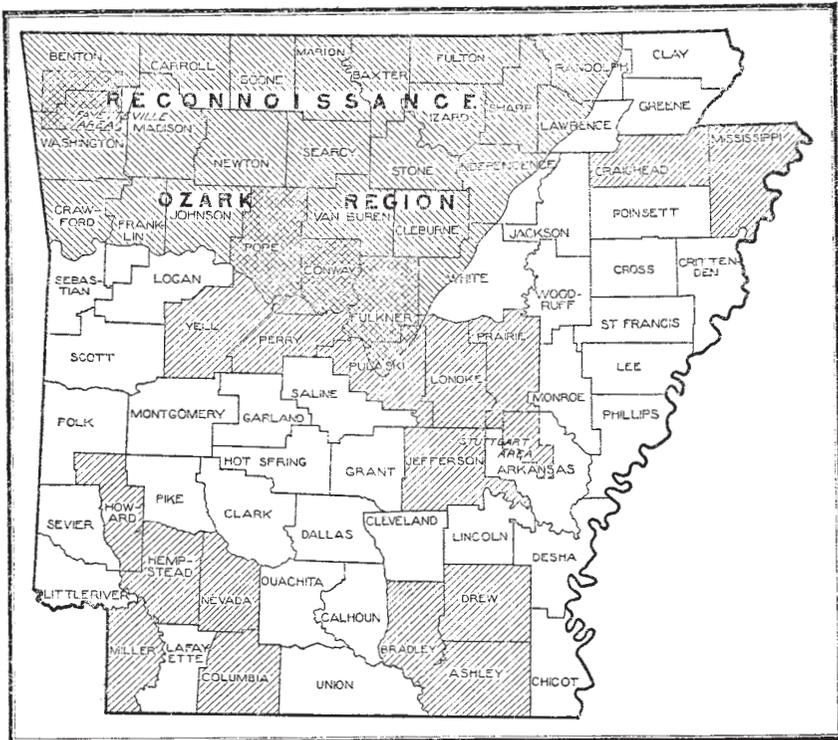
JOINT RESOLUTION Amending public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, "providing for the printing annually of the report on field operations of the Division of Soils, Department of Agriculture."

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, be amended by striking out all after the resolving clause and inserting in lieu thereof the following:

That there shall be printed ten thousand five hundred copies of the report on field operations of the Division of Soils, Department of Agriculture, of which one thousand five hundred copies shall be for the use of the Senate, three thousand copies for the use of the House of Representatives, and six thousand copies for the use of the Department of Agriculture: *Provided,* That in addition to the number of copies above provided for there shall be printed, as soon as the manuscript can be prepared, with the necessary maps and illustrations to accompany it, a report on each area surveyed, in the form of advance sheets, bound in paper covers, of which five hundred copies shall be for the use of each Senator from the State, two thousand copies for the use of each Representative for the congressional district or districts in which the survey is made, and one thousand copies for the use of the Department of Agriculture.

Approved, March 14, 1904.

[On July 1, 1901, the Division of Soils was reorganized as the Bureau of Soils, and on July 1, 1927, the Bureau of Soils became a unit of the Bureau of Chemistry and Soils.]



Areas surveyed in Arkansas, shown by shading

Accessibility Statement

The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at (800) 457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at <http://offices.sc.egov.usda.gov/locator/app>.

The USDA Target Center can convert USDA information and documents into alternative formats, including Braille, large print, video description, diskette, and audiotape. For more information, visit the TARGET Center's Web site (<http://www.targetcenter.dm.usda.gov/>) or call (202) 720-2600 (Voice/TTY).

Nondiscrimination Policy

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees, and applicants for employment on the basis of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, whether all or part of an individual's income is derived from any public assistance program, or protected genetic information. The Department prohibits discrimination in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases apply to all programs and/or employment activities.)

To File an Employment Complaint

If you wish to file an employment complaint, you must contact your agency's EEO Counselor (http://directives.sc.egov.usda.gov/33081_wba) within 45 days of the date of the alleged discriminatory act, event, or personnel action. Additional information can be found online at http://www.ascr.usda.gov/complaint_filing_file.html.

To File a Program Complaint

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at http://www.ascr.usda.gov/complaint_filing_cust.html or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter by mail to

U.S. Department of Agriculture; Director, Office of Adjudication; 1400 Independence Avenue, S.W.; Washington, D.C. 20250-9419; by fax to (202) 690-7442; or by email to program.intake@usda.gov.

Persons with Disabilities

If you are deaf, are hard of hearing, or have speech disabilities and you wish to file either an EEO or program complaint, please contact USDA through the Federal Relay Service at (800) 877-8339 or (800) 845-6136 (in Spanish).

If you have other disabilities and wish to file a program complaint, please see the contact information above. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.), please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).