Series 1961, No. 2

Issued November 1963

SOIL SURVEY

Hart County Georgia

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATIONS

HOW TO USE THE SOIL SURVEY REPORT

THIS SOIL SURVEY of Hart County will serve several groups of readers. It will help farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; aid foresters in managing woodland; serve as a reference for students and teachers; and add to our knowledge of soil science.

Locating the soils

Use the index to map sheets at the back of this report to locate areas on the detailed soil map. The index is a small map of the county on which numbered rectangles have been drawn to show what part of the county is represented on each sheet of the detailed soil map. When the correct sheet of the large soil map has been found, it will be seen that the soil areas are outlined and that each soil is designated by a symbol. All areas marked with the same symbol are the same kind of soil. Suppose, for example, an area located on the map has the symbol MgB2. The legend for the detailed map shows that this symbol identifies Madison sandy loam, 2 to 6 percent slopes, eroded. This soil and all others mapped in the county are described in the section "Descriptions of the Soils."

Finding information

Special sections of the report will interest different groups of readers, and some sections will be of interest to all.

Farmers and those who work with farmers can learn about the soils in the section "Descriptions of the Soils" and then turn to the section "Use and Management of the Soils." In this way they first identify the soils on their farm and then learn how these soils can be managed and what yields can be expected. The "Guide to Mapping Units," which is at the back of the report, shows where information about each particular use of the soils can be found in this report.

Foresters and others interested in woodland can refer to the section "Woodland." In that section, the soils of the county are grouped according to their suitability for trees, and factors affecting the management of woodland are explained.

Engineers will want to refer to the section "Engineering Uses of the Soils." Tables in that section show soil characteristics that affect engineering.

Soil scientists and others interested in the nature of soils will find information about how the soils were formed and how they are classified in the section "Genesis, Morphology, and Classification of the Soils."

Students, teachers, and other users will find various parts of the report useful, depending on their particular interests.

Newcomers to Hart County will be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the County," which gives additional information about the county.

* * * *

The soil survey of Hart County was made as part of the technical assistance furnished by the Soil Conservation Service to the Broad River Soil Conservation District. Fieldwork for the survey was completed in 1960. Unless otherwise indicated, all statements in the report refer to conditions in the county at that time.

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1968

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C., 20402

Contents

Series 1961, No. 2.

Issued November 1963

SOIL SURVEY OF HART COUNTY, GEORGIA

BY DAN H. JORDAN, ALEXANDER WRIGHT, AND LOUIE W. FROST, JR., SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE, AGRICULTURAL EXPERIMENT STATIONS

HART COUNTY is in the northeastern part of Georgia (fig. 1). The northern boundary is the Tugaloo River (now part of the Hartwell Reservoir), and the eastern boundary is the Savannah River. These rivers separate Georgia from South Carolina.

The total area of Hart County is 257 square miles, or 164,480 acres. Hartwell, the county seat, is about 95 miles northeast of Atlanta, Ga., 40 miles northeast of Athens, Ga., and 27 miles southwest of Anderson, S.C.

General Nature of the County

Hart County was created by the Georgia State Legislature on December 7, 1853, from parts of Elbert, Franklin, and Madison Counties.

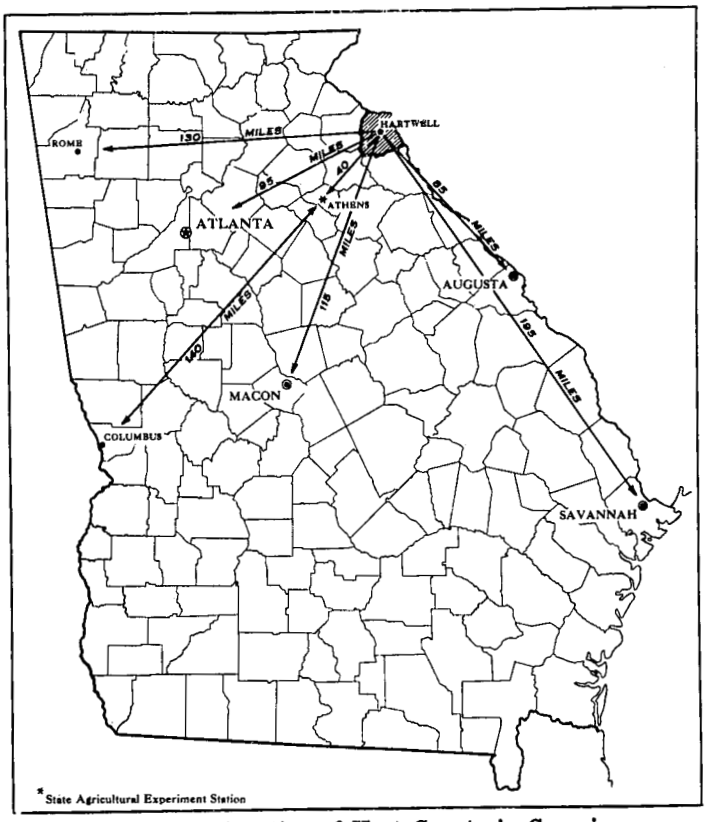

Figure 1.—Location of Hart County in Georgia.

Many of the early settlers of the county were former soldiers in the Revolutionary War who took advantage of Government land grants. Later, settlers came from other parts of Georgia, from North Carolina, from South Carolina, and from States farther north. They cleared tracts of land along the rivers. Many of the areas cleared by these early settlers were too steep to be suitable for cultivation and have now reverted to forest.

In 1960 the population of the county was 15,229. About 70 percent of the population lived in rural areas. Hartwell had a population of 4,599 in 1960.

Geology, Physiography, and Drainage

All of Hart County is in the Piedmont (*4*).[1] Originally a plain, the area has been thoroughly dissected by the Savannah and Tugaloo Rivers and their tributaries. The topography is nearly level to steep. Steep slopes border the streams in the northwestern and the northeastern parts of the county. The gently sloping areas are along the ridges between the interstream divides. The ridges that make up the central and the southern parts of the county are very gently sloping and gently sloping. The flood plains are narrow and nearly level. Even along the largest streams, the flood plains are only about 1,000 feet wide.

About 60 percent of Hart County is underlain by metasedimentary schist and gneiss. About 40 percent is underlain by granite of Precambrian age (*4*).

The elevation is about 800 feet above sea level. The highest point, 934 feet, is at Bowersville. The lowest, 498 feet, is in the Savannah River, about 1¼ miles south of Hartwell.

The Tugaloo River joins the Seneca River about 6 miles above the Hartwell Dam to form the Savannah River. The Hartwell Reservoir inundated about 17,000 acres of land in the county along the Savannah River, the Tugaloo River, and the tributaries of these rivers. Shoal Creek, Reed Creek, Lightwood Log Creek, and Powderbag Creek flow northward and eastward into the Hartwell Reservoir and drain the northern and eastern parts of the county. Beaverdam Creek, Little Beaverdam Creek, Coldwater Creek, and Cedar Creek flow southeastward into the Savannah River and drain the southern half of the county.

[1] Italic numbers in parentheses refer to "Literature Cited," p. 65.

Climate

The climate of Hart County is characterized by long, moderately hot summers and short, mild winters. In summer, daytime temperatures between 95° and 100° F. are common, but the nights are usually moderately cool. Occasionally the temperature drops to around 10° F. in winter, but only for short periods. In summer the prevailing winds are from the west, and most of the rain clouds are from that direction. Warm, moist, southerly winds alternate with cold, dry, northerly winds in winter.

Table 1 shows, by months, the average daily maximum temperature, the average daily minimum temperature, and the average precipitation.

Cultural Development and Improvements

There are two consolidated high schools in Hartwell and seven elementary schools scattered throughout the county. Schoolbuses transport the children to and from school.

Electricity and telephone service are available to most of the farms in the county. Most homes have radios, television sets, ranges, washing machines, refrigerators, and other electrical appliances.

Two commercial pipelines transport gas across the southern section of the county. One main line supplies natural gas to Hartwell and to many rural residences.

Golfing, swimming, and picnic facilities are available in the Hartwell area. Fishing, boating, swimming, and water skiing are available in the reservoir area of the Hartwell Dam.

Water Supply

The water supply is generally adequate for farm, industry, and home use. Dug wells less than 60 feet deep provide water for most of the farm homes. Where these are inadequate, wells from 100 to 250 feet deep are being drilled and bored. These wells yield from 6 to 10 gallons of water per minute. Branches, springs, farm ponds, and rivers are the main sources of water for livestock. The Savannah River and other permanent streams provide water for cities, for industries, and for irrigation. A 17,000-acre artificial lake makes up the reservoir area above the Hartwell Dam. It is in the northeastern part of the county.

Agriculture

A self-sustaining type of agriculture was established along the Tugaloo River and the Savannah River before Hart County was organized. Cattle, hogs, and sheep were raised. Corn, oats, wheat, rye, barley, and tobacco were the main crops until 1800, when the cultivation of cotton was started in the county. Cotton and other produce were shipped down the Savannah River to markets at Augusta and Savannah.

There were 1,078 farms in Hart County in 1880; in 1920 there were 3,103; and in 1959 there were 1,201.

Table 2 gives the number of livestock in the county in 1940, in 1950, and in 1959, and the amount of dairy and poultry products sold in those years.

Table 3 lists the number of acres that were planted to important crops in 1939, 1949, and 1959, and the number of fruit trees and nut trees in the county in 1940, in 1950, and in 1959.

TABLE 1.—*Temperature and precipitation for Hart County, Ga.*

Month	Temperature				Precipitation				
	Average daily maximum	Average daily minimum	2 years in 10 will have at least 4 days with—		Average monthly total	1 year in 10 will have—		Days with snow cover of 1 inch or more	Average depth of snow
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—		
	°F.	°F.	°F.	°F.	*Inches*	*Inches*	*Inches*	*Number*	*Inches*
January	56	34	72	21	4.8	2.6	8.5	(1)	1.0
February	58	35	73	22	4.5	1.6	7.5	1	3.0
March	65	40	80	27	5.2	3.4	8.0	1	3.0
April	75	49	87	37	4.2	1.5	7.0	----------	----------
May	84	57	93	47	3.2	.7	6.3	----------	----------
June	90	65	100	57	3.4	1.4	5.7	----------	----------
July	91	68	100	62	4.9	2.3	10.1	----------	----------
August	90	68	100	60	4.0	1.0	7.1	----------	----------
September	86	62	95	54	3.6	.7	8.2	----------	----------
October	77	51	88	38	3.1	.4	6.4	----------	----------
November	65	40	78	26	3.0	1.2	4.8	----------	----------
December	56	34	70	21	4.6	2.2	8.7	(1)	1.0
Year	74	50	102	17	48.5	39.6	59.0	2	3.0

[1] Less than half a day.

TABLE 2.—*Livestock on farms and livestock products sold in stated years*

Livestock and products	1940	1950	1959
	Number	*Number*	*Number*
Hogs and pigs	[1] 3, 609	3, 553	6, 718
Horses and mules	[2] 3, 703	2, 689	731
Cattle, all ages	[2] 4, 784	6, 202	7, 014
Milk cows	2, 852	2, 859	2, 165
Whole milk sold	[3] 57, 621	[3] 359, 681	[4] 9, 460, 882
Chickens sold	75, 639	165, 415	3, 446, 662
Broilers sold	([5])	([5])	3, 387, 852
Chicken eggs sold (dozens)	([5])	101, 953	870, 609

[1] Over 4 months old.
[2] Over 3 months old.
[3] Pounds reported.
[4] Gallons reported.
[5] Not reported.

TABLE 3.—*Acreage of principal crops and number of fruit and nut trees of bearing age in stated years*

Crops	1939	1949	1959
	Acres	*Acres*	*Acres*
Cotton harvested	27, 748	23, 427	8, 799
Corn for all purposes	22, 485	12, 300	4, 426
Oats threshed or combined	9, 484	18, 951	8, 683
Wheat threshed or combined	5, 662	4, 581	6, 831
Hay, except sorghum, soybeans, and cowpeas	4, 165	6, 959	3, 563
Vegetables harvested for sale	39	436	477
	Number [1]	*Number* [1]	*Number*
Peach trees	16, 445	5, 221	4, 719
Pecan trees	4, 062	5, 794	3, 384

[1] 1 year later than year given at head of column.

In 1959 there were 970 tractors on 712 farms and 645 trucks on 542 farms.

Transportation and Markets

Two branch line railroads serve Hart County. The Hartwell Railway connects Hartwell with a branch line of the Southern Railway at Bowersville. This branch line of the Southern Railway extends southeastward to Elberton.

U.S. Highway No. 29 crosses the county, connecting Anderson, S.C., and Athens, Ga. The county is served by paved State highways. Most of the farm-to-market roads are paved or have been graded and improved with a sand-clay surface.

Cotton, the principal money crop, is usually sold to local buyers. Poultry, pimiento peppers, and aromatic tobacco are grown under contract. Livestock is sold at auctions in adjoining counties. Small grain, corn, grain sorghum, and hay are sold to local markets. Major markets that can be reached within 4 hours include Atlanta, Ga., Augusta, Ga., Anderson, S.C., and Greenville, S.C.

Industry

The industrial plants in Hart County include an auto equipment company, a synthetics weaving plant, three garment plants, a tool factory, and a cotton mill. Other industrial plants in the county are feed mills, flour mills, cotton gins, hatcheries, lumber mills, seed cleaning and treating plants, a printing and publishing company, and a mica processing plant.

Many people who are employed by industrial plants live on small farms in the county and do part-time farming.

How Soils Are Named, Mapped, and Classified

Soil scientists made this survey to learn what kinds of of soils are in Hart County, where they are located, and how they can be used.

They went into the county knowing they likely would find many soils they had already seen and perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug or bored many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down to the parent material that has not been changed much by leaching or by roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to uniform procedures. To use this report efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

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

Many soil series contain soils that differ in the texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. Appling sandy loam and Appling sandy clay loam are two soil types in the Appling series. The difference in the texture of their surface layers is apparent from their names.

Some soil types vary so much in slope, degree of erosion, number and size of stones, or some other feature affecting their use, that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into soil phases. The name of a soil phase indicates a feature that affects management. For example, Madison sandy loam, 2 to 6 percent slopes, is one of several phases of Madison sandy loam, a soil type that has a slope range of 2 to 25 percent.

After a fairly detailed guide for classifying and naming the soils had been worked out, the soil scientists drew soil boundaries on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other

details that help in drawing boundaries accurately. The soil map in the back of this report was prepared from the aerial photographs.

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

In most mapping, there are areas to be shown that are so rocky, so shallow, or so frequently worked by wind and water that they cannot be called soils. These areas are shown on the soil map, but they are called land types rather than soils and are given descriptive names, such as Gullied land or Rock land.

Only part of the soil survey was done when the soil scientist had named and described the soil series and mapping units and had shown the location of the mapping units on the soil map. He still had to present the mass of detailed information he had recorded in different ways for different groups of users, among them farmers, managers of woodlands, and engineers. To do this efficiently, he had to consult with persons in other fields of work and with them prepare groupings that would be of practical value to the different users. Such groupings are the capability classes, subclasses, and units, designed primarily for those interested in producing the short-lived crops and tame pasture; woodland suitability groups, for those who manage wooded tracts; and the classifications used by engineers who build highways or structures to conserve soil and water.

General Soil Map

After study of the soils in a locality and the way they are arranged, it is possible to make a general map that shows several main patterns of soils, called soil associations. Such a map is the colored general soil map in the back of this report. Each association, as a rule, contains a few major soils and several minor soils, in a pattern that is characteristic although not strictly uniform.

The soils within any one association are likely to differ from each other in some properties: for example, slope, depth, stoniness, or natural drainage. Thus, the general soil map shows, not the kind of soil at any particular place, but patterns in each of which there are several different kinds of soil.

Each soil association is named for the major soil series in it, but, as already noted, soils of other series may also be present. The major soils of one association may also be present in another association but in a different pattern.

The general map showing patterns of soils is useful to people who want a general idea of the soils, who want to compare different parts of a county, or who want to know the possible location of good-sized areas suitable for a certain kind of farming or other land use.

The five soil associations in Hart County shown on the general soil map in the back of this report are described in the paragraphs that follow.

1. Madison-Cecil association

Soils with red subsoil, on broad ridges and moderate to steep side slopes

This soil association is widely distributed. It makes up about 75 percent of the county. It consists of long, broad, gently undulating ridgetops, moderate to steep side slopes, and small draws.

About 50 percent of this association consists of Madison soils, and about 35 percent consists of Cecil soils. These soils are well drained. Their surface layer is friable sandy loam that is gravelly in some places. Their subsoil is red clay loam. The Madison soils contain more mica than the Cecil soils.

Also in this association are soils of the Appling, Grover, and Durham series. They are less red than Madison and Cecil soils. At the head of draws and at the base of slopes along drainageways are small areas of the somewhat poorly drained Colfax soils and of Local alluvial land, wet. The narrow flood plains consist of well-drained Congaree soils and Alluvial land.

The broad, smooth ridges, which comprise about 75 percent of this association, are intensively cultivated. Much of this association is severely eroded. In some areas, erosion has removed all of the original surface layer and has exposed the red subsoil. Most of the steeper slopes and the adjacent draws are now in pine forest or improved pasture, but they have been cropped in the past. Some of the steepest slopes still support the original vegetation.

Most of the farms in this association are small, well managed, productive, and farmer owned. The farming is chiefly of the general type. Except in the severely eroded areas, these soils are easily tilled and are suited to a wide range of crops. Some of the crops commonly grown are cotton, corn, small grain, pimiento peppers, pasture, and lespedeza for hay.

2. Lloyd association

Soils with dark-red subsoil, on ridges and side slopes

The five small areas of this association are in the northwestern part of the county. They occupy about 2 percent of the county. Gently undulating ridgetops, moderately steep side slopes, and narrow draws characterize the landscape.

About 90 percent of this association consists of Lloyd soils. Uneroded areas of these soils have a dark-brown sandy loam or loam surface layer, but there are also large areas that are severely eroded and have a surface layer of red clay loam. Along the draws are narrow strips of local alluvium.

The smoother ridgetops, which make up a large part of this association, are in cultivation. Most of the steeper slopes and the adjacent draws are now in improved pasture, hay crops, and pine forest, but they have been cropped in the past. Some of the steepest slopes still support the original vegetation.

Most of the farms in this association are well managed and productive. Cotton, corn, small grain, and lespedeza are grown on the smoother ridgetops.

3. Appling-Grover-Durham association

Very gently rolling soils with brown or olive-brown subsoil mottled with yellowish red

The three areas of this association are in the southwestern part of the county. They occupy about 12 percent of the county. Broad, very gently rolling areas, and small depressions in which local colluvium has accumulated characterize the landscape.

Appling, Grover, and Durham soils are dominant in this association. They are well drained to moderately well drained. The surface layer is dark grayish-brown to olive-gray loamy coarse sand and sandy loam. The subsoil is sandy clay loam. Also in this association are minor areas of Colfax soils, Congaree soils, and Local alluvial land.

Most of the acreage is used for crops, principally cotton, corn, small grain, and lespedeza. A very small acreage is in pasture and woodland.

4. Louisa-Madison association

Micaceous soils with red subsoil, on ridges and moderate to steep side slopes

The small, narrow areas that make up this association are in the central part of the county. They occupy about 5 percent of the county. Narrow, sloping ridgetops and steep, gravelly side slopes characterize the landscape.

The well-drained Louisa and Madison soils make up almost all of this association. Madison soils occupy the narrow upland ridges. Louisa soils and the gravelly phases of Madison soils are on the steeper side slopes adjacent to creeks and small drainageways.

Madison and Louisa soils have a surface layer of dark grayish-brown to brown fine sandy loam and gravelly sandy loam. In the severely eroded areas, their surface layer is yellowish-brown to yellowish-red sandy clay loam. Louisa soils are shallow to bedrock and have a very thin subsoil or none. Madison soils have a thicker and redder subsoil than Louisa soils, and they have more gravel throughout the profile. Both kinds of soil contain mica flakes and quartz mica schist.

The soils of this association are well suited to deep-rooted grasses, sericea lespedeza, kudzu, and pine. The smoother ridgetops are used for cultivated crops, including cotton, corn, small grain, and lespedeza. Most of the steeper slopes are now in mixed hardwood and pine, but they have been cropped in the past. Some of the very steepest slopes still support the original vegetation.

5. Chewacla-Congaree-Alluvial land association

Somewhat poorly drained to well-drained soils on flood plains

This association makes up about 6 percent of the county. It consists of alluvial soils in narrow strips along streams. Most of it is in the southern part of the county, but there are some areas in the northwestern part.

Chewacla and Congaree soils dominate on the flood plains of the larger streams. These soils have a surface layer of reddish-brown to pale-brown sandy loam and silt loam. Their subsoil is light brownish-gray and yellowish-red silty clay loam. Alluvial land occupies narrow strips along the small branches and creeks.

Also in this association are minor areas of the well-drained Altavista and Wickham soils, which occur on the stream terraces. These soils have a surface layer of dark-brown to reddish-brown fine sandy loam. Their subsoil is yellowish-red to yellowish-brown sandy clay loam. Very small areas of Wehadkee soils occur in pockets near the toe of the uplands.

Most of the acreage has been cleared. Some has reverted to woodland. Hardwoods predominate on the flood plains, and pines on the stream terraces. Except in areas that are frequently flooded, the soils on the flood plains are well suited to corn, grain sorghum, and pasture. Those on the stream terraces are well suited to most locally grown crops, to pasture, and to trees. Yields are high if management is good.

Use and Management of the Soils

This section discusses the system of land capability classification used by the Soil Conservation Service and gives the classification of the soils of Hart County according to that system. It describes management practices for groups of soils that have similar potentialities and management requirements; gives estimates of average yields of the common crops; and discusses the effect of climate on crop yields. It groups the soils according to their suitability for use as woodland and gives information that is useful in the management of woodland; and it interprets the soil characteristics that are significant in road construction and other engineering uses.

Capability Groups of Soils

The capability classification is a grouping of soils that shows, in a general way, how suitable they are for most kinds of farming. It is a practical grouping based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment.

In this system all the kinds of soil are grouped at three levels: the capability class, the subclass, and the unit. The eight capability classes in the broadest grouping are designated by Roman numerals I through VIII. In class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other classes have progressively greater natural limitations. In class VIII are soils and landforms so rough, shallow, or otherwise limited that they do not produce worthwhile yields of crops or of wood products.

The subclasses indicate major kinds of limitations within the classes. Within most of the classes there can be up to four subclasses. The subclass is indicated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* means that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the country, indicates that the chief limitation is a climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few or no limitations. Class V can contain, at

the most, only subclasses *w*, *s*, and *c*, because the soils in it have little or no erosion hazard but have other limitations that limit their use largely to pasture, woodland, or wildlife.

Within the subclasses are the capability units, groups of soils enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. The capability units are convenient groupings for making many statements about management of soils. Capability units are generally identified by numbers assigned locally, for example, IIe–1 or IIIe–2.

Soils are classified in capability classes, subclasses, and units in accordance with the degree and kind of their permanent limitations, but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soil, and without consideration of possible but unlikely major reclamation projects.

The eight classes in the capability system, and the subclasses and units in this county, are described in the list that follows.

Class I: Soils that have few limitations that restrict their use.
- Unit I–1: Nearly level, well-drained soils in pockets or draws.

Class II: Soils that have moderate limitations that reduce the choice of plants or that require moderate conservation practices.
- Subclass IIe: Soils moderately limited by risk of erosion if they are not protected.
  - Unit IIe–1: Very gently sloping, slightly eroded and moderately eroded soils that have a surface layer of sandy loam and a subsoil of red sandy clay loam.
  - Unit IIe–2: Gently sloping, slightly eroded and moderately eroded soils that have a surface layer of sandy loam and loamy coarse sand and a subsoil of yellowish-brown or yellowish-red sandy clay loam.
- Subclass IIw: Soils moderately limited by excess water.
  - Unit IIw–2: Moderately well drained and well drained soils on first bottoms; subject to occasional overflow.
- Subclass IIs: Soils moderately limited by low available moisture capacity.
  - Unit IIs–1: Nearly level, slightly eroded, droughty soils that have a surface layer of loamy coarse sand and a subsoil of light olive-brown sandy clay loam.

Class III: Soils that have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.
- Subclass IIIe: Soils severely limited by risk of erosion if they are tilled and not protected.
  - Unit IIIe–1: Gently sloping and moderately sloping, moderately eroded and severely eroded soils that have a surface layer of sandy loam, clay loam, or sandy clay loam and a subsoil of red sandy clay loam, clay loam, or clay.
  - Unit IIIe–2: Gently sloping and moderately sloping, slightly eroded to severely eroded soils that have a surface layer of sandy loam, sandy clay loam, or loamy coarse sand and a mottled, yellowish-red subsoil.
- Subclass IIIw: Soils severely limited by excess water.
  - Unit IIIw–2: Somewhat poorly drained soils of mixed texture, on first bottoms; subject to occasional overflow.
  - Unit IIIw–3: Somewhat poorly drained soils that have a mottled, compact subsoil.
- Subclass IIIs: Soils very severely limited by low available moisture capacity.
  - Unit IIIs–1: Excessively drained loamy sands on first bottoms; subject to frequent overflow.

Class IV: Soils that have very severe limitations that restrict the choice of plants, or that require very careful management, or both.
- Subclass IVe: Soils very severely limited by risk of erosion if they are not protected.
  - Unit IVe–1: Moderately sloping and strongly sloping, moderately eroded and severely eroded soils that have a subsoil of red clay loam and sandy clay loam.
- Subclass IVw: Soils very severely limited by excess water.
  - Unit IVw–1: Poorly drained soils on first bottoms; subject to frequent overflow.

Class V: Soils that have little or no erosion hazard but that have other limitations that restrict their use to pasture, range, woodland, or food and cover for wildlife.
- Subclass Vw: Soils too wet for cultivation; drainage or protection not feasible.
  - Unit Vw–1: Level to very gently sloping, very poorly drained soils.

Class VI: Soils that have severe limitations that make them generally unsuitable for cultivated crops and that limit their use largely to pasture, range, woodland, or food and cover for wildlife.
- Subclass VIe: Soils not suitable for cultivation and limited chiefly by the risk of erosion.
  - Unit VIe–2: Moderately steep, moderately eroded and severely eroded soils that have a surface layer of clay loam, sandy clay loam or sandy loam and a red, clayey subsoil.
  - Unit VIe–3: Moderately sloping and strongly sloping soils that have a thin, discontinuous subsoil over weathered mica schist.

Class VII: Soils that have very severe limitations that make them unsuitable for cultivated crops and that restrict their use largely to grazing, woodland, or food and cover for wildlife.
- Subclass VIIe: Soils very severely limited by the risk of erosion if they are not protected.
  - Unit VIIe–1: Moderately steep, severely eroded soils.
  - Unit VIIe–2: Moderately steep soils that are shallow to granite bedrock; thin, discontinuous subsoil.
  - Unit VIIe–3: Gullied land type.

Class VIII: Soils and land types that have limitations that preclude their use for commercial plants and that restrict their use to recreation, wildlife, water supply, or esthetic purposes.

Subclass VIIIs: Soils and land types that support little vegetation.

Unit VIIIs–1: Rocky and excavated areas.

Management by Capability Units [2]

In the following pages each of the 19 capability units in Hart County is described, the soils in each are listed, and some suggestions for use and management are given.

Capability unit I–1

This unit consists of one well-drained, nearly level soil that is in depressions and along drainageways of the uplands. The 6- to 8-inch plow layer is yellowish-brown, very friable sandy loam. The effective rooting depth is 36 inches or more. The depth to bedrock is 8 to 20 feet. The only soil in this unit is—

Congaree sandy loam, local alluvium.

Fertility is moderately high, and the organic-matter content is moderate. Surface runoff is slow, the rate of infiltration is medium, and the available moisture capacity is high. The reaction is strongly acid.

About 0.3 percent of the county consists of this soil. Most of the areas are too small to be managed separately and are included with associated soils in cultivated fields or pastures. Many are well located for use as waterways.

This soil is well suited to truck crops, corn, small grain, soybeans, grain sorghum, and peaches. Tall fescue, bermudagrass, ryegrass, dallisgrass, annual lespedeza, sericea lespedeza, crimson clover, ladino clover, and cowpeas are suitable hay and pasture plants. Row crops can be grown every year if they are followed by cover crops. Examples of suitable cropping systems follow:

1. Truck crops every year, followed by cover crops for soil improvement.
2. Corn or grain sorghum (1 year); small grain interplanted in spring with lespedeza.

Nitrogen, phosphorus, and potassium should be applied regularly, and lime should be applied occasionally. Legumes need nitrogen only at the time of planting. This soil is well suited to sprinkler irrigation.

Capability unit IIe–1

This unit consists of well-drained soils on broad interstream divides and on high stream terraces. The 6- to 8-inch plow layer is very friable sandy loam. The subsoil is friable to firm sandy clay loam. The effective rooting depth is 36 to 48 inches or more. The depth to bedrock is 6 to 15 feet. The soils in this unit are—

Cecil sandy loam, 2 to 6 percent slopes.
Cecil sandy loam, 2 to 6 percent slopes, eroded.
Lloyd soils, 2 to 6 percent slopes, eroded.
Madison sandy loam, 2 to 6 percent slopes.
Madison sandy loam, 2 to 6 percent slopes, eroded.
Madison gravelly sandy loam, thin solum, 2 to 6 percent slopes, eroded.
Wickham fine sandy loam, 2 to 6 percent slopes, eroded.

These soils are moderate to low in natural fertility and contain little organic matter. Surface runoff and the rate of infiltration are medium. The available moisture capacity is moderate. The erosion hazard is slight to moderate. The reaction is strongly acid to medium acid.

About 20 percent of the county consists of these soils. About 78 percent of the acreage is cultivated, 8 percent is pastured, and 14 percent is wooded.

These soils are well suited to cotton, corn, grain sorghum, pimiento peppers, small grain, millet, soybeans, peaches, pecans, truck crops, and nursery crops (fig. 2). Clover, lespedeza, vetch, alfalfa, peas, bermudagrass, dallisgrass, bahiagrass, tall fescue, orchardgrass, and ryegrass are suitable hay and pasture plants. Close-growing crops should be grown 2 years out of 4. Examples of suitable cropping systems follow:

1. Cotton or pimiento peppers (2 years); a small grain or annual lespedeza (2 years).
2. Corn (1 year); cotton or pimiento peppers (1 year); small grain, lespedeza, cowpeas, or soybeans (2 years). Leave all crop residues on or near the surface.
3. Small grain, fescue, or lespedeza (1 year); cotton, pimiento peppers, or corn (1 year). Alternate the crops on contour strips.
4. Corn (1 year); small grain or grain sorghum (2 years). Leave all crop residues on or near the surface.

Nitrogen, phosphorus, and potassium should be applied regularly, and lime should be applied occasionally. Legumes need nitrogen only at the time of planting. Alfalfa needs an annual application of boron. Contour tillage, terraces, and vegetated waterways help to control erosion and to conserve moisture. These soils are well suited to sprinkler irrigation.

Capability unit IIe–2

This unit consists of moderately well drained and well drained, gently sloping soils on broad interstream divides and low stream terraces. The surface layer is sandy loam or loamy coarse sand. The subsoil is firm to very firm sandy clay loam. The effective rooting depth is 22 to 36 inches. The depth to bedrock is 4 feet or more. The soils in this unit are—

Altavista fine sandy loam, 2 to 6 percent slopes.
Appling loamy coarse sand, thin solum, 2 to 6 percent slopes.
Appling sandy loam, 2 to 6 percent slopes.
Appling sandy loam, 2 to 6 percent slopes, eroded.
Durham loamy coarse sand, thin solum, 2 to 6 percent slopes.
Grover sandy loam, 2 to 6 percent slopes, eroded.

These soils are low in natural fertility and contain little organic matter. The rate of infiltration is medium, and the available moisture capacity is moderate. The erosion hazard is slight to moderate. The reaction is strongly acid to medium acid. In the loamy coarse sands, the surface layer is droughty and easily leached of plant nutrients.

About 2 percent of the county consists of soils of this unit. About 85 percent of the acreage is under cultivation, 10 percent is in woodland, and 5 percent is in pasture.

These soils are well suited to small grain, pimiento peppers, grain sorghum, soybeans, millet, cowpeas, peaches, and pecans. They are slow to warm up in spring; consequently, cotton, corn, and truck crops cannot be planted early. Clover, lespedeza, bermudagrass, dallisgrass, ryegrass, tall fescue, and orchardgrass are suitable hay and pasture plants. Close-growing crops should be grown 1

[2] J. N. NASH, conservation agronomist, Soil Conservation Service, assisted with the preparation of this subsection.

674438—63——2

Figure 2.—**Corn and pimiento peppers on Cecil sandy loam, 2 to 6 percent slopes. This field is terraced and well managed.**

year out of every 2 or 3 years. Winter cover crops should be turned under every other year. Examples of suitable cropping systems follow:

1. Cotton or pimiento peppers (2 years); small grain or annual lespedeza (2 years).
2. Corn (1 year); cotton or pimiento peppers (1 year); small grain, lespedeza, cowpeas, or soybeans (1 year). Leave all crop residues on or near the surface.
3. Small grain, fescue, or lespedeza (1 year); cotton pimiento peppers, or corn (1 year). Alternate the crops on contour strips.
4. Corn (1 year); small grain or grain sorghum (2 years). Leave all crop residues on or near the surface.

Capability unit IIw–2

This unit consists of moderately well drained and well drained, nearly level soils that are on first bottoms and are flooded occasionally. The surface layer is friable silt loam and sandy loam. Sand and silt have been deposited on some areas by floodwater. The effective rooting depth is 36 to 48 inches or more. The soils in this unit are—

Alluvial land.
Congaree soils.

These soils contain a moderate amount of organic matter. The reaction is strongly acid or medium acid. Surface runoff is slow, the rate of infiltration is medium, and the available moisture capacity is high. The erosion hazard is slight. Good tilth is easily maintained, and plant nutrients are not leached out rapidly.

Less than 2 percent of the county consists of soils of this unit. About 50 percent of the acreage is in woodland, 30 percent is in pasture, 10 percent is under cultivation, and the rest is idle.

These soils are well suited to corn, grain sorghum, and truck crops. Crimson clover, button clover, ladino clover, tall fescue, annual lespedeza, orchardgrass, dallisgrass, bermudagrass, ryegrass, and peas are suitable for hay and pasture. Examples of suitable cropping systems follow:

1. Corn or grain sorghum each year, followed with a winter cover crop, mulch planted.
2. Corn (3 years); small grain or lespedeza (1 year).
3. Corn, Caley peas, or button clover (2 years); leave peas or clover in the field until the seed is mature; follow with grain sorghum or soybeans (1 year).

Nitrogen, phosphorus, and potassium should be applied regularly, and lime should be applied occasionally. Legumes need nitrogen at the time of planting. If row crops are grown intensively, it is important to maintain the supply of organic matter. These soils are well suited to sprinkler irrigation.

Open drainage ditches covered with grasses or legumes provide effective drainage.

Poplar, ash, birch, gum, loblolly pine, and shortleaf pine are suitable trees.

Capability unit IIs–1

This unit consists of one well-drained, nearly level soil on uplands. The 6- to 8-inch plow layer is olive-gray, granular loamy coarse sand. The subsoil is light olive-brown, firm sandy clay loam. The effective rooting depth

is 22 to 32 inches. The depth to bedrock is 4 to 15 feet. The only soil in this unit is—

Durham loamy coarse sand, thin solum, 0 to 2 percent slopes.

This soil is easy to till, but it is somewhat droughty and is readily leached. Fertility is low, and the organic-matter content is very low. The rate of infiltration is medium, permeability is moderate, and the available moisture capacity is moderate. The reaction is strongly acid.

Less than 1 percent of the county consists of this soil. About 90 percent of the acreage is cultivated, and the rest is wooded.

This soil is fairly well suited to cotton, corn, grain sorghum, pimiento peppers, truck crops, and other locally grown crops. It is also fairly well suited to grasses and to most legumes, but it is not suited to alfalfa. Early planting is not advisable, because this soil is slow to warm up in spring. Close-growing crops should be grown 2 years out of 4. Examples of suitable cropping systems follow:

1. Cotton or pimiento peppers (1 year); small grain or annual lespedeza (1 year).
2. Corn, Caley peas, or button clover (1 year); cotton, pimiento peppers, Caley peas, or button clover (1 year); leave the peas or clover in the field until the seed is mature; follow with grain sorghum or soybeans (1 year).

Large amounts of organic matter and commercial fertilizer are needed to maintain yields. Legumes need nitrogen only at planting time. Organic matter, in addition to helping to maintain fertility, helps to preserve good tilth and to control leaching. Terraces, stripcropping, and grassed waterways are needed to control water. This soil is not well suited to sprinkler irrigation.

Capability unit IIIe-1

This unit consists of well-drained soils along the crests of ridges. In the severely eroded soils the surface layer is firm, and in the others it is very friable. The subsoil is red, firm sandy clay loam, clay loam, or clay. The effective rooting depth is 36 to 48 inches or more. The soils in this unit are—

Cecil sandy clay loam, 2 to 6 percent slopes, severely eroded.
Cecil sandy loam, 6 to 10 percent slopes, eroded.
Lloyd clay loam, 2 to 6 percent slopes, severely eroded.
Lloyd soils, 6 to 10 percent slopes, eroded.
Madison gravelly sandy loam, thin solum, 6 to 10 percent slopes, eroded.
Madison sandy clay loam, 2 to 6 percent slopes, severely eroded.
Madison sandy loam, 6 to 10 percent slopes, eroded.

These soils are low in natural fertility and contain little organic matter. They are strongly acid. The rate of infiltration is medium to slow, permeability is moderate, and the available mositure capacity is moderately low to moderate. The reaction is strongly acid.

Rounded concretions, 5 to 10 millimeters in diameter, are common in the surface of the Madison soils. The Madison gravelly sandy loam is about 20 percent quartz gravel. The concretions and gravel interfere with tillage.

About 30 percent of the county consists of soils of this unit. About 65 percent of the acreage is under cultivation, 18 percent is in woodland, 15 percent is in pasture, and the rest is idle. The eroded soils are well suited to cotton, corn, grain sorghum, and small grain. The severely eroded soils are only fairly well suited to these crops. Millet, soybeans, peas, peaches, and pecans can be grown also. Clover, lespedeza, vetch, velvetbeans, alfalfa, bermudagrass, dallisgrass, tall fescue, ryegrass, and orchardgrass are suitable hay and pasture plants. Close-growing, soil-improving crops should be grown 2 years out of 3. Examples of suitable cropping systems follow:

1. Corn (1 year); small grain, mulch planted and overseeded with lespedeza (1 year). Alternate the crops on contour strips or rotate them in terraced fields.
2. Corn (1 year); Coastal bermudagrass (2 years). Rotate the crops on contour strips or on terraced fields. Bermudagrass will reestablish itself.
3. Corn or cotton (1 year); small grain (2 years). Rotate the crops on contour strips or on terraced fields. Leave the stubble on the surface, or mulch plant a summer crop.
4. Cotton, corn, or grain sorghum (1 year); grain and lespedeza (3 years). Rotate the crops on contour strips.
5. Cotton, corn, or grain sorghum (1 year); small grain (1 year); alfalfa (4 years). Rotate the crops on contour strips.

Nitrogen, phosphorus, and potassium should be applied regularly, and lime should be applied occasionally. Legumes need nitrogen only at the time of planting. Alfalfa needs an annual application of boron. Crop residues and a cover crop every 3 or 4 years help to replenish the supply of organic matter, which is depleted fairly rapidly even under good management. Contour tillage, terraces, contour strips, and grassed waterways are needed to retard runoff and to help control erosion (fig. 3). These soils are suited to sprinkler irrigation.

If a moldboard plow is used, a plowsole is likely to form directly under the plow layer. The plowsole can be broken up by deep tillage and by growing deep-rooted legumes. The severely eroded soils in this unit are difficult to till and can be worked within only a narrow range of moisture content.

Capability unit IIIe-2

This unit consists of well-drained soils on broad, saddle-like, interstream divides. The surface layer is very friable. The subsoil is yellowish-red, friable to firm sandy clay loam. The effective rooting depth is 22 to 36 inches. The depth to bedrock is more than 5 feet. Mica flakes are common throughout the profile of Grover sandy loam, 6 to 10 percent slopes, eroded. The soils in this unit are—

Appling loamy coarse sand, thin solum, 6 to 10 percent slopes.
Appling sandy clay loam, 2 to 6 percent slopes, severely eroded.
Appling sandy loam, 6 to 10 percent slopes, eroded.
Grover sandy loam, 6 to 10 percent slopes, eroded.

Fertility is low, and the organic-matter content is low. The rate of infiltration is slow in the severely eroded soil and medium in the others. The available moisture capacity is low. The reaction is strongly acid.

Only about 2 percent of the county consists of soils of this unit. About 43 percent of the acreage is under cul-

Figure 3.—**A waterway seeded with sericea lespedeza in a terraced field of cotton and corn.**

tivation, 30 percent is in pasture (fig. 4), and 27 percent is in woodland.

These soils are suited to cotton, corn, and truck crops, but these crops should not be planted early, because the soils are slow to warm up. Other suitable crops are small grain, grain sorghum, soybeans, cowpeas, millet, peaches, and pecans. Crimson clover, white clover, annual lespedeza, sericea lespedeza, Coastal bermudagrass, common bermudagrass, dallisgrass, tall fescue, ryegrass, and orchardgrass are suitable hay and pasture plants. A close-growing, soil-conserving crop should be grown 2 out of every 3 or 4 years. Examples of suitable cropping systems follow:

1. Corn (1 year); small grain, mulch planted and overseeded with lespedeza (1 year). Rotate the crops on contour strips. Harvest grain and lespedeza for seed and leave the stubble on the surface to protect and to improve the soils.
2. Corn (1 year); Coastal bermudagrass (2 years). Rotate the crops on contour strips or in terraced fields. Bermudagrass will reestablish itself voluntarily.
3. Corn or cotton (1 year); small grain (2 years); leave straw and stubble undisturbed or mulch plant a summer crop. Rotate the crops on contour strips or in terraced fields.
4. Cotton, grain sorghum, or corn (1 year); grain and lespedeza (3 years). Rotate the crops on contour strips.
5. Cotton, grain sorghum, or corn (1 year); small grain (1 year); alfalfa (4 years). Rotate the crops on contour strips.

Nitrogen, phosphorus, and potassium should be applied regularly, and lime should be applied occasionally. Legumes need nitrogen only at the time of planting. Contour tillage, terraces, and grassed waterways help to retard runoff and to control erosion.

All but the severely eroded soil are easy to keep in good tilth. Severely eroded areas that are not protected by vegetation tend to dry out. Deep tillage and growing deep-rooted crops help to improve the available moisture capacity in such areas. The Appling loamy coarse sand is readily leached of plant nutrients. It needs a winter cover crop every year to increase its organic-matter content. This soil is not suited to sprinkler irrigation, but the rest of the soils in this unit are.

Capability unit IIIw–2

This unit consists of one soil and one land type that are on first bottoms and are flooded occasionally. Drainage is somewhat poor. The surface layer is friable fine sandy loam and silt loam. The subsoil is firm silty clay mottled with yellowish red and pale brown. The effective rooting depth is 36 to 60 inches. There is no evidence of erosion, but floods have left deposits of sand and silt in places. In this unit are—

Alluvial land, wet.
Chewacla soils.

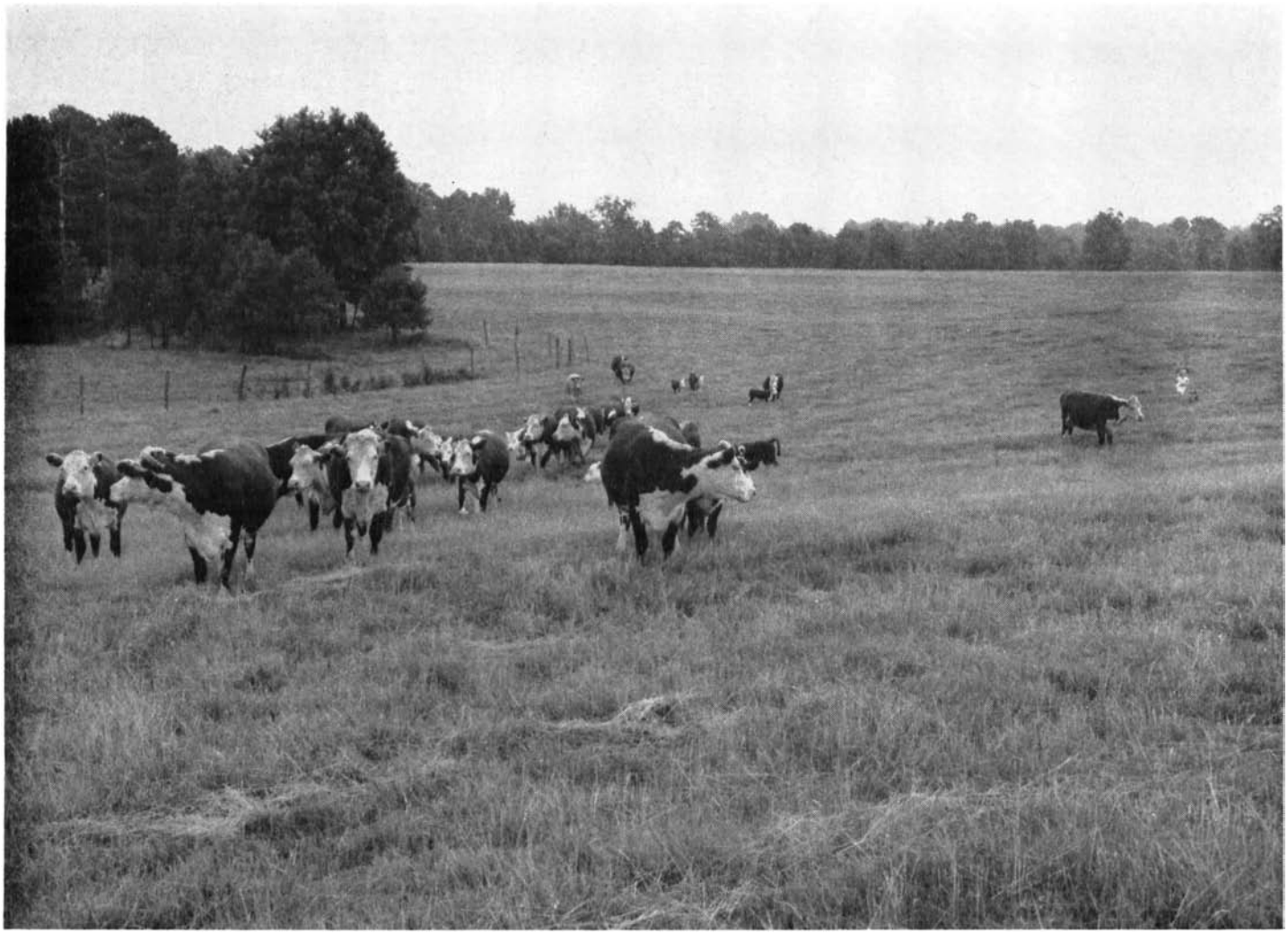

Figure 4.—**Pasture on Appling sandy loam, 6 to 10 percent slopes, eroded.**

Fertility is moderately high, and the organic-matter content is moderate. Surface runoff is slow, permeability is moderately slow, the rate of infiltration is medium, and the available moisture capacity is very high. The reaction is strongly acid. Plant nutrients are not leached out rapidly.

Only about 2 percent of the county consists of these two mapping units. About 60 percent of the acreage is in pasture, 30 percent is in woodland, 5 percent is under cultivation, and the rest is idle.

This unit is suited principally to hay and pasture. Ryegrass, fescue, Coastal bermudagrass, common bermudagrass, dallisgrass, rescuegrass, annual lespedeza, crimson clover, button clover, and ladino clover are suitable plants. Corn, grain sorghum, soybeans, velvetbeans, and peas can be grown but are likely to be damaged by floods. Because of the flood hazard, small grain and alfalfa are not suitable. Examples of suitable cropping systems follow:

1. Corn or grain sorghum every year. Every 2 years, mulch plant a winter cover crop for soil improvement.
2. Corn, Caley peas, or button clover (2 years); leave peas or clover in the field until the seed is mature; follow with grain sorghum or soybeans (1 year).
3. Corn (3 years); soybeans, followed by annual lespedeza (for seed) or by clover.

Nitrogen, phosphorus, and potassium should be applied regularly, and lime should be applied occasionally. Legumes need nitrogen only at the time of planting. Soil-improving crops are needed to supply organic matter and to help maintain productivity and to preserve good tilth. These soils are well suited to sprinkler irrigation.

Open drainage ditches planted to grasses and legumes provide drainage for nearby fields.

Capability unit IIIw–3

This unit consists of one somewhat poorly drained soil that occurs around the head of drainageways. The surface layer is light grayish-brown, friable sandy loam. In some places, 6 to 10 inches of sandy material has been deposited on the surface. The subsoil is mottled, light yellowish-brown to light-gray, firm and very firm sandy clay loam. The effective rooting depth is 20 to 30 inches,

except in a few spots that have a panlike clay subsoil. The only soil in this unit is—

Colfax sandy loam, 2 to 6 percent slopes.

Fertility is low, and the organic-matter content is low. Surface runoff is medium, permeability is slow, and the available moisture capacity is moderately low. The reaction is very strongly acid.

Less than 1 percent of the county consists of this soil. About 50 percent of the acreage is in pasture, 25 percent is under cultivation, and the rest is in trees and brush. Some areas are well located for use as waterways.

This soil is best suited to summer pasture of annual lespedeza, bermudagrass, dallisgrass, orchardgrass, millet, tall fescue, clover, small grain, and cowpeas. Corn, grain sorghum, and truck crops can be grown, but they should not be planted early, because this soil warms up slowly in spring. Examples of suitable cropping systems follow:

1. Corn (2 years); tall fescue and whiteclover (2 years).
2. Rye or grain sorghum every year, mulch planted.
3. Corn or grain sorghum (1 year); small grain overseeded with lespedeza (1 year); harvest small grain and allow lespedeza to grow.

Nitrogen, phosphorus, and potassium should be applied regularly, and lime should be applied occasionally. Legumes need nitrogen only at the time of planting. All crop residues should be retained, and soil-improving crops should be grown often. If cultivated when wet, this soil tends to clod and crack as it dries. Contour farming helps to control erosion. Diversions may be needed to intercept runoff from higher areas. This soil is well suited to sprinkler irrigation.

Capability unit IIIs–1

This unit consists of one excessively drained, frequently flooded soil that is on first bottoms along the Savannah River and the larger creeks in Hart County. The surface layer is dark yellowish-brown loamy sand. In places the surface is irregular. The subsoil is light yellowish-brown to strong-brown loamy sand and loamy fine sand. The only soil in this unit is—

Buncombe loamy sand.

Fertility is low, and the organic-matter content is low. Surface runoff is slow or very slow, internal drainage is rapid, and the available moisture capacity is low. The reaction is strongly acid.

This soil occupies a very small acreage in the county. Most of it is in woodland, some is in pasture, and the rest is idle. It is not well suited to cultivated crops, but corn, velvetbeans, and watermelons can be grown in rotation with close-growing crops. Sericea lespedeza and Coastal bermudagrass are suitable pasture plants. An example of a suitable cropping system follows:

Sericea lespedeza or Coastal bermudagrass (2 or 3 years); corn or velvetbeans (1 year).

This is a droughty soil that is readily leached and requires frequent applications of lime, nitrogen, phosphorus, and potassium. It also needs organic matter, which can be supplied by turning under crop residues and growing close-growing crops. It is not suited to sprinkler irrigation, because it is excessively drained and nutrients leach rapidly.

Pine grows well on this soil if scrub oaks, briers, and sassafras are kept under control.

Capability unit IVe–1

This unit consists of well-drained, eroded soils that occur on the side slopes of interstream divides. The surface layer is yellowish red, yellowish brown, or dark brown. There are many shallow gullies and a few gullies 3 to 6 feet deep. The soils in this unit are—

Appling sandy clay loam, 6 to 10 percent slopes, severely eroded.
Cecil sandy clay loam, 6 to 10 percent slopes, severely eroded.
Lloyd clay loam, 6 to 10 percent slopes, severely eroded.
Madison gravelly sandy loam, thin solum, 10 to 15 percent slopes, eroded.
Madison sandy clay loam, 6 to 10 percent slopes, severely eroded.
Madison sandy loam, 10 to 15 percent slopes, eroded.
Wickham clay loam, 6 to 10 percent slopes, severely eroded.

Fertility is low. There is practically no organic matter. In the severely eroded soils, the rate of infiltration is slow. The available moisture capacity is moderately low to low. The reaction is strongly acid. About 20 percent of the surface layer of Madison gravelly sandy loam consists of fragments of quartz mica schist.

About 13 percent of the county consists of soils of this unit. About 35 percent of the acreage is under cultivation, 35 percent is in woodland, 25 percent is in pasture, and the rest is idle.

Because of poor tilth and susceptibility to further erosion, these soils are poorly suited to cultivated crops. They are best suited to deep-rooted hay and pasture plants. Cotton and corn are grown, but yields are low. Sericea lespedeza and alfalfa are suitable hay crops. Common bermudagrass, Coastal bermudagrass, fescue, ryegrass, crimson clover, millet, cowpeas, and kudzu are suitable grasses and legumes for pasture. Examples of suitable cropping systems follow:

1. Corn or cotton (1 year); tall fescue and clover (3 years). Rotate the crops on contour strips.
2. Corn or cotton (1 year); small grain, followed by mulch-planted grain sorghum or soybeans (1 year); tall fescue and clover (3 years).
3. Corn or cotton (1 year); small grain, followed by mulch-planted grain sorghum or soybeans (1 year); tall fescue and clover (4 years).

Nitrogen, phosphorus, and potassium should be applied regularly. Lime should be added often enough to keep the reaction neutral or only slightly acid. Legumes need nitrogen only at the time of planting. Alfalfa needs an annual application of boron.

Close-growing crops 3 out of every 4 or 5 years help to retard runoff and control erosion. Contour tillage, terraces, and grassed waterways help to control erosion when row crops are grown.

If a moldboard plow is used regularly, a plowsole is likely to form just below the plow layer. The severely eroded soils are hard to till; they can be worked only within a narrow range of moisture content, and they tend to bake and clod if plowed when wet. Because of the strong slopes and the slow rate of infiltration, the soils in this unit are not suited to sprinkler irrigation.

Capability unit IVw-1

This unit consists of poorly drained soils that are on first bottoms along the larger streams and rivers. They are flooded frequently, and many spots are under water most of the year. The surface layer is olive-gray, friable silt loam and silty clay. The subsoil is mottled, grayish-brown and yellow, friable silty clay loam. This unit consists of—

Wehadkee soils.

Fertility is moderately high, and the organic-matter content is moderate. Surface runoff is slow to very slow, and the available moisture capacity is very high. The reaction is strongly acid.

These soils occupy a very small acreage in the county. Their use is restricted because they have a high water table and are hard to drain. They support a mixture of undesirable hardwoods and an undergrowth of marsh grasses. Willow, alder, ash, blackgum, beech, poplar, and water oak are the most common trees. Ladino clover, tall fescue, bermudagrass, and dallisgrass are suitable plants for pasture. Corn and sorghum can be grown in areas that are drained and protected from floods. Examples of suitable cropping systems follow:

1. Corn (2 years); tall fescue and white clover (2 years).
2. Corn or sorghum for silage each year, followed by Caley peas. Once in 3 years, leave the peas in the field until the seed is mature.

Lime and a complete fertilizer should be applied regularly.

Capability unit Vw-1

This unit consists of one very poorly drained land type that occurs in depressions and at the base of slopes. The surface layer is composed of local deposits of sand and clay, 6 to 18 inches thick. It is light gray streaked with yellow and light brown. The subsoil is gray, fine-textured, sticky sandy clay. The land type that makes up this unit is—

Local alluvial land, wet.

Fertility is moderately low, and the organic-matter content is low. Surface runoff is slow, and the available moisture capacity is high. Permeability is moderate in the surface layer and slow in the subsoil. The reaction is strongly acid.

This land type occupies a very small acreage in the county. Most of it is in pasture or in woodland. Drained areas are used for summer pasture of bermudagrass, dallisgrass, annual lespedeza, tall fescue, and ladino clover. Poplar, maple, alder, blackgum, willow, pine, and an undergrowth of marsh grasses grow in the wooded areas.

Pastures need regular applications of lime, nitrogen, phosphorus, and potassium. They can be drained adequately by open ditches. Diversions may be needed for protection against water that runs off higher areas. Seeding and mowing are difficult because of wet spots, the tough, fine-textured subsoil, the tendency of the surface layer to bake and clod, and the limited time during which the soil can be worked. Sandy sediments have accumulated in some areas.

In these areas there are some good locations for farm ponds, which can be stocked with fish (fig. 5).

Capability unit VIe-2

This unit consists of well-drained, eroded soils on uplands. The subsoil is red, friable to firm sandy clay. There are many areas where the original surface soil has been lost through erosion. The soils in this unit are—

Appling sandy clay loam, 10 to 15 percent slopes, severely eroded.
Cecil sandy clay loam, 10 to 15 percent slopes, severely eroded.
Cecil sandy loam, 10 to 25 percent slopes, eroded.
Lloyd clay loam, 10 to 25 percent slopes, severely eroded.
Madison gravelly sandy loam, thin solum, 15 to 25 percent slopes, eroded.
Madison sandy clay loam, 10 to 15 percent slopes, severely eroded.
Madison sandy loam, 15 to 25 percent slopes, eroded.

Fertility is low, and the organic-matter content is low. Surface runoff is rapid, the rate of infiltration is slow to medium, and the available moisture capacity is moderate. The reaction is strongly acid.

About 13 percent of the county consists of soils of this unit. About 70 percent of the acreage is in woodland, 15 percent is in pasture, 8 percent is under cultivation, and the rest is idle.

These soils are not suited to cultivated crops. The less severely eroded areas are suited to pasture. The steeper and more severely eroded areas are suited to pine trees.

These soils are highly susceptible to erosion. A permanent cover of vegetation helps to control erosion and also increases the organic-matter content and improves the available moisture capacity. Pastures need lime and large amounts of nitrogen, phosphorus, and potassium. Rapid runoff makes sprinkler irrigation impractical.

Capability unit VIe-3

This unit consists of shallow, somewhat excessively drained soils that occur on narrow ridgetops in the uplands. The surface layer is dark grayish-brown to yellowish-brown, friable fine sandy loam. It is underlain by a discontinuous layer of yellowish-red, very friable silt loam. Fragments of quartz and mica schist, 1 to 5 inches in size, are common. The soils in this unit are—

Louisa fine sandy loam, 6 to 15 percent slopes.
Louisburg sandy loam, 6 to 15 percent slopes, eroded.

Fertility is low, and the organic-matter content is low. Surface runoff and the rate of infiltration are rapid. The available moisture capacity is low to very low. The reaction is strongly acid. These soils are droughty, and plant nutrients leach out readily.

About 1 percent of the county consists of soils of this unit. Most of the acreage is in woodland or in pasture.

These soils are not suited to cultivated crops. They are best suited to forest or other permanent vegetation. Some areas once cultivated are now in loblolly pine or shortleaf pine. A few acres are now in permanent pasture of deep-rooted grasses and legumes. Pastures need lime, nitrogen, phosphorus, and potassium.

Capability unit VIIe-1

This unit consists of well-drained soils on short, strong slopes near drainageways in the uplands. The surface soil is sandy clay loam, and the subsoil is red, friable to

Figure 5.—**A well-managed farm pond in an area of Local alluvial land, wet.**

firm clay loam. Gullies are common. The soils in this unit are—

Cecil sandy clay loam, 15 to 25 percent slopes, severely eroded.
Madison sandy clay loam, 15 to 25 percent slopes, severely eroded.

Fertility is very low, and the organic-matter content is very low. The rate of infiltration is slow, surface runoff is rapid, and the available moisture capacity is low. The reaction is strongly acid.

About 3 percent of the county consists of soils of this unit. About 90 percent of the acreage is in woodland, 5 percent is in pasture, and the rest is idle.

These soils are not suited to cultivated crops. They are best suited to woodland. A few less severely eroded areas are in pasture of sericea lespedeza and kudzu.

Capability unit VIIe-2

This unit consists of shallow, somewhat excessively drained soils that are on ridges and slopes next to drainageways in the uplands. The surface layer, to a depth of 8 to 12 inches, is grayish-brown, very friable sandy loam. It is underlain by yellowish-red, very friable material that shows little or no evidence of soil development. Granite boulders are common in some places, and there are some outcrops. The soils in this unit are—

Louisa fine sandy loam, 15 to 25 percent slopes.
Louisburg sandy loam, 15 to 25 percent slopes, eroded.

Fertility is very low, and the organic-matter content is very low. The rate of infiltration and permeability are rapid, and the available moisture capacity is very low. The reaction is very strongly acid. Plant nutrients leach out readily.

Less than 1 percent of the county consists of soils of this unit. Most of the acreage is in woodland.

These soils are too thin, steep, stony, and droughty to be used for cultivated crops. They are best suited to forest. A few of the smoother slopes are in pasture.

Capability unit VIIe-3

This unit consists of one land type that is characterized by an intricate pattern of deep and shallow gullies, many of which have cut into the weathered parent rock. The soil remaining between the gullies is mostly sandy clay loam. It was originally the lower part of the B horizon. The land type that makes up this unit is—

Gullied land.

This land type is very low in fertility and contains no organic matter. The rate of infiltration is very slow, and the available moisture capacity is low.

Only 58 acres in the county consists of Gullied land. Most of this acreage is in volunteer scrub pine and in undesirable hardwoods. A few acres are in kudzu.

This land type is not suited to cultivated crops, pasture, or hay crops. It can be managed so that it will afford protection for the watershed. Pine and kudzu can be spot planted. Sericea lespedeza and bicolor lespedeza can be grown if well managed.

Capability unit VIIIs-1

This unit consists of two land types—

Mine pits and dumps.
Rock land.

Mine pits and dumps occupy one area of about 175 acres where mica is mined. This area is characterized by an intricate pattern of deep and shallow gullies and many large dumps of soil material.

Rock land consists of areas where 50 to 90 percent of the surface is covered by outcrops of granite.

Generally, plants cannot grow on these land types. The areas can be managed so that they will afford protection for the watershed. To a limited extent, Rock land can be developed as a recreational area.

Estimated Yields

Estimated yields of the principal crops on most soils in Hart County, under two levels of management, are shown in table 4. Gullied land, Mine pits and dumps, and Rock land are not listed. Estimates of average yields obtained under management practices commonly used in the county are listed in columns A, and estimates obtained under improved management are listed in columns B.

The estimates are based on records of yields on individual farms, on experimental data, and on estimates made by agronomists who have had experience with the crops and with the soils. Dashes in a column, instead of a figure, indicate that the crop is not suited to the particular soil. The estimates do not reflect losses caused by flooding or increased yields resulting from irrigation.

Management practices assumed for estimating the yields listed in the B columns are as follows: Choosing carefully the kind of crop to be grown and the cropping system to be used; preparing the seedbed adequately; planting seed by suitable methods, at suitable rates, and at appropriate times; controlling weeds and insect pests; inoculating legume seed; planting high-yielding varieties; controlling water by drainage, terraces, vegetated waterways, and contour cultivation; and applying fertilizer and lime as indicated by soil tests.

The foregoing practices apply to all soils listed in table 4. In addition, special practices are employed for particular crops. It is not practical to give these special practices for every soil. The alternative chosen is that of giving the special practices for those soils that produce specified average yields, as listed in the B columns of table 4.

Cotton.—For soils yielding 500 pounds or more per acre of cotton, as listed in column B, the following special treatments are required: Apply 60 to 96 pounds each of nitrogen (N), phosphoric acid (P_2O_5), and potash (K_2O); plant 24,000 to 30,000 plants per acre; provide effective control of insects. For soils yielding 300 to 500 pounds per acre, the following special treatments are required: Apply 36 to 60 pounds each of nitrogen (N), phosphoric acid (P_2O_5), and potash (K_2O); plant 16,000 to 25,000 plants per acre; provide effective control of insects.

Corn.—For soils yielding 75 bushels or more per acre of corn, as listed in column B, the following special treatments are required: Apply 100 to 160 pounds of nitrogen (N), 60 to 80 pounds of phosphoric acid (P_2O_5), and 60 to 80 pounds of potash (K_2O); plant 10,000 to 15,000 plants per acre; turn under all crop residues, or grow a winter cover crop and turn it under. For soils yielding 35 to 75 bushels per acre, the following special treatments are required: Apply 50 to 100 pounds of nitrogen (N), 36 to 60 pounds of phosphoric acid (P_2O_5), and 36 to 60 pounds of potash (K_2O); plant 8,000 to 10,000 plants per acre; turn under all crop residues, or grow a winter cover crop and turn it under.

Grain Sorghum.—For soils yielding 75 bushels or more per acre of grain sorghum, as listed in column B, the following special treatments are required: Apply 80 to 110 pounds of nitrogen (N), 70 to 80 pounds of phosphoric acid (P_2O_5), and 70 to 80 pounds of potash (K_2O); plant 25,000 to 30,000 plants per acre, drilled in rows; turn under all crop residues, or grow a winter cover crop and turn it under. For soils yielding 35 to 75 bushels per acre, the following special treatments are required: Apply 32 to 80 pounds of nitrogen (N), 36 to 80 pounds of phosphoric acid (P_2O_5), and 36 to 80 pounds of potash (K_2O); plant 20,000 to 25,000 plants per acre, drilled in rows; turn under all crop residues, or grow a winter cover crop and turn it under. For soils yielding 15 to 35 bushels per acre, the following special treatments are required: Apply 16 to 32 pounds each of nitrogen (N), phosphoric acid (P_2O_5), and potash (K_2O); plant 15,000 to 20,000 plants per acre.

Oats.—For soils yielding 70 bushels or more per acre of oats, as listed in column B, the following special treatments are required: Apply 40 to 60 pounds each of nitrogen (N), phosphoric acid (P_2O_5), and potash (K_2O) at planting time; apply 32 to 64 pounds of nitrogen late in winter. For soils yielding 50 to 70 bushels, the following special treatments are required: Apply 20 to 40 pounds of nitrogen (N), 40 to 60 pounds of phosphoric acid (P_2O_5), and 40 to 60 pounds of potash (K_2O) at planting; apply 25 to 40 pounds of nitrogen late in winter. For soils yielding 30 to 50 bushels per acre, the following special treatments are required: Apply 8 to 16 pounds of nitrogen (N), 24 to 48 pounds of phosphoric acid (P_2O_5), and 24 to 48 pounds of potash (K_2O) at planting time; apply 16 to 32 pounds of nitrogen late in winter.

Wheat.—For soils yielding 35 bushels or more per acre of wheat, as listed in column B, the following special treatments are required: Apply 40 to 60 pounds each of nitrogen (N), phosphoric acid (P_2O_5), and potash (K_2O) at planting time; apply 32 to 64 pounds of nitrogen late in winter. For soils yielding 20 to 35 bushels per acre, the following special treatments are required: Apply 20 to 40 pounds of nitrogen (N), 40 to 60 pounds of phosphoric acid (P_2O_5), and 40 to 60 pounds of potash (K_2O) at planting time; apply 25 to 40 pounds of nitrogen late in

674438—63——3

TABLE 4.—*Estimated average acre yields of*

[Yields in columns A are those to be expected under management common in the county; those in columns B, under

Soil	Cotton		Corn		Grain sorghum	
	A	B	A	B	A	B
	Lb. of lint	*Lb. of lint*	*Bu.*	*Bu.*	*Bu.*	*Bu.*
Alluvial land			35	65	40	70
Alluvial land, wet			32	55	35	65
Altavista fine sandy loam, 2 to 6 percent slopes	375	575	40	65	40	65
Appling sandy loam, 2 to 6 percent slopes, eroded	350	550	35	55	35	55
Appling sandy loam, 2 to 6 percent slopes	375	575	40	65	40	65
Appling sandy loam, 6 to 10 percent slopes, eroded	325	525	25	45	30	50
Appling sandy clay loam, 2 to 6 percent slopes, severely eroded	300	450	22	40	22	40
Appling sandy clay loam, 6 to 10 percent slopes, severely eroded	275	400	20	38	22	38
Appling sandy clay loam, 10 to 15 percent slopes, severely eroded						
Appling loamy coarse sand, thin solum, 2 to 6 percent slopes	350	450	30	50	35	50
Appling loamy coarse sand, thin solum, 6 to 10 percent slopes	300	425	20	40	20	40
Buncombe loamy sand			15	30	15	30
Cecil sandy loam, 2 to 6 percent slopes	400	600	35	60	35	60
Cecil sandy loam, 2 to 6 percent slopes, eroded	375	575	32	58	30	55
Cecil sandy loam, 6 to 10 percent slopes, eroded	325	525	25	50	25	50
Cecil sandy loam, 10 to 25 percent slopes, eroded						
Cecil sandy clay loam, 2 to 6 percent slopes, severely eroded	300	500	20	38	25	40
Cecil sandy clay loam, 6 to 10 percent slopes, severely eroded	275	475	18	35	20	42
Cecil sandy clay loam, 10 to 15 percent slopes, severely eroded						
Cecil sandy clay loam, 15 to 25 percent slopes, severely eroded						
Chewacla soils			40	75	40	75
Colfax sandy loam, 2 to 6 percent slopes			20	35	15	30
Congaree sandy loam, local alluvium	400	575	42	75	40	70
Congaree soils			45	80	45	80
Durham loamy coarse sand, thin solum, 0 to 2 percent slopes	375	575	35	60	35	60
Durham loamy coarse sand, thin solum, 2 to 6 percent slopes	375	575	35	60	35	60
Grover sandy loam, 2 to 6 percent slopes, eroded	350	550	35	55	35	55
Grover sandy loam 6 to 10 percent slopes, eroded	325	525	25	45	30	50
Lloyd soils, 2 to 6 percent slopes, eroded	375	575	32	58	30	55
Lloyd soils, 6 to 10 percent slopes, eroded	360	550	30	55	30	55
Lloyd clay loam, 2 to 6 percent slopes, severely eroded	280	420	26	42	25	40
Lloyd clay loam, 6 to 10 percent slopes, severely eroded	270	400	24	40	20	35
Lloyd clay loam, 10 to 25 percent slopes, severely eroded						
Local alluvial land, wet						
Louisa fine sandy loam, 6 to 15 percent slopes						
Louisa fine sandy loam, 15 to 25 percent slopes						
Louisburg sandy loam, 6 to 15 percent slopes, eroded						
Louisburg sandy loam, 15 to 25 percent slopes, eroded						
Madison sandy loam, 2 to 6 percent slopes, eroded	400	600	35	60	35	60
Madison sandy loam, 2 to 6 percent slopes	425	650	40	65	40	65
Madison sandy loam, 6 to 10 percent slopes, eroded	375	575	30	55	32	52
Madison sandy loam, 10 to 15 percent slopes, eroded	300	500	20	35	25	50
Madison sandy loam, 15 to 25 percent slopes, eroded						
Madison gravelly sandy loam, thin solum, 2 to 6 percent slopes, eroded	400	600	35	60	35	65
Madison gravelly sandy loam, thin solum, 6 to 10 percent slopes, eroded	375	575	30	55	32	60
Madison gravelly sandy loam, thin solum, 10 to 15 percent slopes, eroded	300	500	20	35	25	50
Madison gravelly sandy loam, thin solum, 15 to 25 percent slopes, eroded						
Madison sandy clay loam, 2 to 6 percent slopes, severely eroded	325	550	25	40	28	43
Madison sandy clay loam, 6 to 10 percent slopes, severely eroded	300	500	20	38	20	45
Madison sandy clay loam, 10 to 15 percent slopes, severely eroded						
Madison sandy clay loam, 15 to 25 percent slopes, severely eroded						
Wehadkee soils						
Wickham fine sandy loam, 2 to 6 percent slopes, eroded	400	600	35	60	30	55
Wickham clay loam, 6 to 10 percent slopes, severely eroded	300	500	20	35	25	45

[1] Dallisgrass, bahiagrass, or Coastal bermudagrass may be substituted for common bermudagrass.
[2] Orchardgrass may be substituted for fescue.

principal crops under two levels of management

improved management. Absence of figure indicates crop is not suited to the soil specified or is not commonly grown on it]

Wheat		Oats		Pimiento peppers		Alfalfa hay	Sericea lespedeza hay		Permanent pasture			
									Common bermudagrass and crimson clover [1]		Fescue and white-clover [2]	
A	B	A	B	A	B	B	A	B	A	B	A	B
Bu.	*Bu.*	*Bu.*	*Bu.*	*Lb.*	*Lb.*	*Tons*	*Tons*	*Tons*	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]
		35	75				1. 8	3. 0	170	235	100	150
									135	195	100	150
20	35	40	65	4, 500	8, 000	2. 5	1. 3	2. 0	135	195	75	125
15	30	35	60	4, 250	7, 750	2. 2	1. 0	1. 8	125	175	70	115
20	35	40	65	4, 500	8, 000	2. 5	1. 2	2. 0	130	180	75	120
12	25	30	55				1. 0	1. 6	125	175	70	115
		25	45	3, 000	6, 500		1. 0	1. 6	120	165	65	100
		25	45				1. 0	1. 6	120	165	65	100
							. 8	1. 6	100	140	60	90
12	25	35	60	3, 000	6, 500		1. 5	2. 0	120	165	70	110
10	20	30	55				1. 3	1. 8	110	155	65	105
		20	35				1. 0	1. 5	80	120	50	80
20	40	45	75	6, 000	10, 000	3. 5	1. 5	2. 0	150	225	80	125
18	38	40	70	5, 750	9, 750	3. 2	1. 3	2. 8	145	220	75	120
12	25	35	55			3. 0	1. 0	2. 5	140	215	70	115
							1. 2	2. 0	105	130	60	100
15	30	30	55	4, 000	8, 000	2. 3	1. 4	2. 2	125	210	70	115
12	25	35	55			2. 0	1. 0	2. 3	115	200	70	110
							. 8	1. 5	80	140	60	90
							. 5	1. 0	50	120	45	75
									140	200	100	150
							. 8	1. 5	90	125	80	120
25	45	38	70	6, 000	10, 000	3. 5	2. 0	3. 0	175	240	100	150
25	45	40	75				2. 0	3. 5	180	250	100	150
20	35	40	65	4, 500	6, 500		1. 3	1. 8	130	180	75	120
20	35	40	65	4, 250	6, 250		1. 3	1. 8	130	180	75	120
15	30	35	60	4, 250	6, 250	2. 2	1. 0	1. 8	125	175	70	115
12	25	30	55				1. 0	1. 6	125	175	70	115
20	32	40	65	5, 750	7, 750	4. 0	1. 8	3. 2	160	235	90	135
18	30	35	60			3. 8	1. 8	3. 2	160	235	90	135
18	32	35	60	4, 000	6, 000	3. 6	1. 8	3. 2	155	225	85	125
17	30	30	57			3. 0	1. 8	3. 2	155	225	85	125
						2. 5	1. 5	2. 5	120	170	70	105
									30	60	70	110
		20	35				1. 5	2. 0	100	140	70	95
							1. 0	1. 5	90	130	60	85
							1. 0	1. 4	90	130	50	70
							. 8	1. 3	85	125	40	65
20	35	45	75	5, 750	8, 000	3. 2	1. 8	2. 8	150	225	80	125
25	45	50	80	6, 000	10, 000	3. 5	2. 0	3. 0	155	230	85	130
18	32	40	70			3. 0	1. 6	2. 5	140	215	75	120
15	30	35	65				1. 5	2. 2	135	210	70	110
							1. 3	2. 0	110	135	60	100
20	35	45	25	5, 750	7, 750		1. 8	3. 2	150	225	60	125
18	32	40	70				1. 8	2. 8	145	220	75	120
15	30	35	65				1. 5	2. 5	135	210	70	110
							1. 2	2. 0	105	130	60	100
18	32	35	65	4, 000	6, 000	2. 5	1. 5	2. 3	125	210	70	110
15	30	38	58			2. 2	1. 2	2. 5	120	210	75	115
							1. 0	1. 6	85	145	65	95
							. 8	1. 3	65	135	55	85
									50	70	80	125
18	35	40	70	5, 750	7, 750	3. 2	1. 5	3. 0	155	230	80	125
15	25	30	60			2. 8	1. 3	2. 5	120	200	80	120

[3] The number of days a year 1 acre will graze a cow, a horse, or a steer without injury to the pasture.

winter. For soils yielding 12 to 20 bushels per acre, the following special treatments are required: Apply 8 to 16 pounds of nitrogen (N), 24 to 48 pounds of phosphoric acid (P_2O_5), and 24 to 48 pounds of potash (K_2O) at planting time; apply 16 to 32 pounds of nitrogen late in winter.

PIMIENTO PEPPERS.—The only soils suited to this crop are well-drained, nearly level or very gently sloping soils that are only slightly or moderately susceptible to erosion. For soils yielding 8,000 to 10,000 pounds per acre of pimiento peppers, as shown in column B, the following special treatments are required: Apply 40 to 50 pounds of nitrogen (N), 80 to 100 pounds of phosphoric acid (P_2O_5), and 80 to 100 pounds of potash (K_2O) at planting time; mix fertilizer well with soil to prevent damage to the plants; sidedress with 16 to 32 pounds of nitrogen; plant 5,000 to 8,000 plants per acre; cultivate just deep enough to control weeds and grass. For soils yielding 4,000 to 8,000 pounds per acre, the following special treatments are required: Apply 20 to 40 pounds of nitrogen (N), 50 to 80 pounds of phosphoric acid (P_2O_5), and 50 to 80 pounds of potash (K_2O) at planting time; sidedress with 10 to 16 pounds of nitrogen; plant 4,000 to 6,000 plants per acre; cultivate just deep enough to control weeds and grass.

ALFALFA.—Alfalfa is ordinarily grown only on the most productive soils and under a high level of management. All soils for which yields are given in table 4 require the following special treatments: Apply 15 to 30 pounds of nitrogen (N), 20 pounds of borax, 96 to 120 pounds of phosphoric acid (P_2O_5), 96 to 120 pounds of potash (K_2O), and 1 to 3 tons of lime (depending on the results of soil tests) at the time of seeding; thereafter, apply 20 pounds of borax, 100 pounds of phosphoric acid (P_2O_5), and 200 pounds of potash (K_2O) annually; add 1 ton of lime at least every 2 or 3 years; mow at proper times, and do not mow between September 15 and the first frost.

SERICEA LESPEDEZA.—For soils yielding 2 tons or more per acre of sericea lespedeza hay, as shown in column B, the following special treatments are required: Apply 8 to 12 pounds of nitrogen (N), 40 to 50 pounds of phosphoric acid (P_2O_5), 40 to 50 pounds of potash (K_2O), and 1 ton of lime at the time of seeding; thereafter, apply 48 to 72 pounds of phosphoric acid (P_2O_5) and 48 to 72 pounds of potash (K_2O) annually; add 1 ton of lime every 4 to 5 years, or add lime in accordance with needs indicated by soil tests. For soils yielding 1 or 2 tons per acre, the following special treatments are required: Apply 8 to 12 pounds of nitrogen (N), 24 to 36 pounds of phosphoric acid (P_2O_5), 24 to 36 pounds of potash (K_2O), and 1 ton of lime at the time of seeding; thereafter, apply 24 to 48 pounds of phosphoric acid (P_2O_5) and 24 to 48 pounds of potash (K_2O) annually; add 1 ton of lime at least once every 3 years, or add lime in accordance with needs indicated by soil tests. Soils yielding less than 1 ton per acre commonly receive little or no lime or fertilizer except that applied at planting.

BERMUDAGRASS AND CRIMSON CLOVER.—For soils yielding 150 to 250 cow-acre-days grazing of bermudagrass and crimson clover, as listed in column B, the following special treatments are required: Apply 32 to 96 pounds of nitrogen, depending on the effectiveness of the clover in furnishing nitrogen for the grass; apply 48 to 96 pounds of phosphoric acid (P_2O_5) and 48 to 96 pounds of potash (K_2O); apply 1 ton of lime every 4 years, or apply lime according to needs indicated by soil tests; mow to prevent excessive growth and to control weeds. For soils yielding 90 to 150 cow-acre-days, the following special treatments are required: Apply 16 to 48 pounds of nitrogen, 24 to 48 pounds of phosphoric acid (P_2O_5), and 24 to 48 pounds of potash (K_2O); apply 1 ton of lime every 3 years, or apply lime according to needs indicated by soil tests; mow to control weeds and to prevent excessive growth. Soils yielding less than 90 cow-acre-days commonly have received little fertilizer and have not been mowed.

TALL FESCUE AND WHITECLOVER.—For soils yielding 100 to 150 cow-acre-days grazing of fescue and whiteclover, as listed in column B, the following special treatments are required: Apply 32 to 96 pounds of nitrogen, depending on the effectiveness of the clover in furnishing nitrogen for the grass; apply 48 to 96 pounds of phosphoric acid (P_2O_5) and 48 to 96 pounds of potash (K_2O); apply 1 ton of lime every 4 years, or apply lime according to needs indicated by soil tests; mow to prevent excessive growth and to control weeds. For soils yielding 60 to 100 cow-acre-days, the following special treatments are required: Apply 16 to 48 pounds of nitrogen, 24 to 48 pounds of phosphoric acid (P_2O_5), and 24 to 48 pounds of potash (K_2O); apply 1 ton of lime every 3 years, or apply lime according to needs indicated by soil tests; mow to prevent excessive growth and to control weeds. Soils yielding less than 60 cow-acre-days commonly have received little fertilizer and have not been mowed.

Crops and Climate [3]

Hart County has a moist, mild climate that is favorable for many kinds of crops.

The length of the growing season is about 218 days. The average date of the last freeze in spring is April 1, and that of the first freeze in fall is November 5. Occasionally a late frost damages fruit-tree blossoms, particularly peach blossoms. By referring to table 5, you can estimate the chances that crops grown early in spring or late in fall will be damaged by freezing temperatures (*3*). Fall-sown small grain, clover, and grass usually survive the mild winters. Alternate freezing and thawing sometimes damage small grains and clover. Damage from this cause is least on well-drained soils. Turnips, cabbage, rape, onions, peas, and spinach can be planted as late as December. Potatoes, beets, carrots, collards, and mustard can be planted in January and February. Other vegetables are usually planted late in March or early in April.

The seasonal distribution of rainfall is ordinarily favorable. March is the wettest month. In December, in January, in February, and in July, the rainfall is normally 4.5 inches or more. Fall is the driest period of the year. About half the annual rainfall comes in quantities of 1 inch or more in a 24-hour period. In winter a little snow may fall, but it soon melts. Table 6, table 7, and table 8 provide supplementary data on the amount and distribution of rainfall.

The dry weather in fall is ideal for harvesting cotton, grain, and hay. Wet weather at that time of the year sometimes damages the hay and grain crops. Corn

[3] Prepared by HORACE S. CARTER, State climatologist, U.S. Weather Bureau, and DAN H. JORDAN, soil scientist, Soil Conservation Service.

TABLE 5.—*Probabilities of freezing temperatures in spring and in fall*

Probability [1]	At least a light freeze [2]	At least a moderate freeze [3]	Severe freeze [4]
Spring:			
50 years out of 100.	March 28	March 16	March 1.
20 years out of 100.	April 10	March 26	March 16.
10 years out of 100.	April 17	April 4	March 19.
Fall:			
50 years out of 100.	November 10	November 17	November 27.
20 years out of 100.	October 27	November 8	November 22.
10 years out of 100.	October 24	November 3	November 13.

[1] For example, in 50 years out of 100, or 1 year out of 2, a severe freeze will occur in spring after March 1; in 20 years out of 100, or 2 years out of 10, at least a moderate freeze will occur in fall before November 8.

[2] Temperature of 28° to 32° F.; as a rule, only the tenderest plants are killed.

[3] Temperature of 24° to 28° F.; most plants are damaged to some extent.

[4] Temperature below 24° F.; most cultivated plants are damaged heavily.

planted on poorly drained and moderately well drained soils on first bottoms is sometimes drowned out in heavy rains. Also, wet weather causes cotton plants to grow a heavy foliage and increases the danger of infestation with boll weevils.

Pastures of common bermudagrass, crabgrass, broomsedge, common lespedeza, and weeds provide grazing from early in April till late in October. Fertilized pastures of clover, Coastal bermudagrass, orchardgrass, dallisgrass, ryegrass, and fescue provide grazing for a longer period.

ESTIMATING PROBABILITY OF DROUGHT DAMAGE.—Lists A and B can be used with table 9 to judge the likelihood that drought will damage a particular crop on a specified soil (7). In list A, find the name of the crop and the average depth of its root zone. Then refer to list B, which gives the total capacity of the soils to hold moisture to a depth of 12 inches, 24 inches, and 36 inches. When you have learned the available moisture capacity of the soil to the depth to which the roots of the crop will penetrate, turn to table 9, where you are given the chances of drought days, by months, for soils of 1-inch, 2-inch, 3-inch, 4-inch, and 5-inch capacities.

Suppose you want to know how likely it is that there will be dry days in July that will retard the growth of garden vegetables on Congaree sandy loam, local alluvium. From list A you find that vegetables have most of their roots in the uppermost 12 inches of the soil; therefore, in list B, you look under "12 inches," and find that the Congaree soils hold approximately 2 inches of available moisture to a depth of 12 inches. Then turn to table 9, find the column headed "2 inches," and read under "Probability" the chances of days when drought will damage vegetables. The chances are 1 in 10 that in July there will be at least 21 drought days, 2 in 10 that there will be at least 17 drought days, 3 in 10 that there will be at least 14 drought days, and 5 in 10 that there will be at least 9 drought days.

Or, again, suppose you want to know the likelihood of dry days in June that will retard the growth of cotton on

TABLE 6.—*Average number of days per year (by months) with rainfall equal to or greater than the stated amounts*

[Based on 10-year record through 1960]

Rainfall equal to or greater than—	Average number of days in—												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Inches													
0.10	7	8	9	7	6	7	7	4	5	5	5	6	76
0.25	5	6	6	5	5	5	5	3	4	3	4	5	56
0.50	3	4	5	3	3	3	4	2	3	2	2	4	38

TABLE 7.—*Total number of days in 10 years (by months) with rainfall equal to or greater than the stated a mounts*

Rainfall equal to or greater than—	Total number of days in—												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Inches													
1.00	16	17	18	11	10	6	15	8	12	7	9	15	144
2.00	1	2	4	4	1	1	3	0	3	0	2	1	22
3.00	0	0	3	0	0	0	1	0	1	0	2	0	7
4.00	0	0	0	0	0	0	0	0	1	0	1	0	2

TABLE 8.—*Total number of 2-week, 4-week, and 6-week [1] periods in 10 years with no day having 0.25 inch or more of precipitation*

Periods equal to or greater than—	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
2 weeks	5	3	1	6	4	7	2	7	5	10	3	4	57
4 weeks	1	1	0	2	0	0	1	3	2	5	0	1	16
6 weeks	0	0	0	0	0	0	0	3	1	1	0	0	5

[1] Dry periods are counted as occurring in the month having the most days in the period. For example, if the dry period begins the first week in August and extends into September, it is counted as occurring in August. If the period begins the last week in August and extends through September and into October, it is counted as occurring in September.

Madison sandy loam. Cotton has most of its roots in the uppermost 24 inches of the soil (list A), and to that depth (list B) Madison sandy loam holds approximately 3 inches of available water. By referring to the column headed "3 inches" in table 9, you can see that there will be at least 12 drought days for cotton in 5 years out of 10.

LIST A: Normal Root Zone for Common Crops on Permeable Soils

80 percent of roots at depth not exceeding—

12 inches	*24 inches*	*36 inches*
Grasses (annual).	Beans (green and lima).	Alfalfa.
Lespedeza (annual).	Clover (crimson and white).	Bermudagrass (coastal).
Most garden vegetables.	Corn.	Fruit trees.
Small grains.	Cotton.	Fescue.
	Cowpeas.	Kudzu.
	Grain sorghum.	Lespedeza (sericea and bicolor).
	Pimiento peppers.	
	Melons.	
	Soybeans.	
	Tomatoes.	

LIST B: Total Available Moisture

Soils:	Approximate available moisture, in inches, of water in soil from surface to a depth of—		
	12 inches	*24 inches*	*36 inches*
Alluvial land	2	4	6
Alluvial land, wet	2	3	5
Altavista fine sandy loam	1	3	5
Appling loamy coarse sand	1	2	3
Appling sandy clay loam	1	3	5
Appling sandy loam	1	3	5
Buncombe loamy sand	1	2	3
Cecil sandy clay loam	1	3	5
Cecil sandy loam	2	3	5
Chewacla soils	2	3	5
Colfax sandy loam	2	3	4
Congaree sandy loam, local alluvium	2	3	6
Congaree soils	2	4	5
Durham loamy coarse sand	1	3	5
Grover sandy loam	1	3	5
Lloyd clay loam	1	3	4
Lloyd soils	2	3	5
Local alluvial land, wet	2	3	5
Louisa fine sandy loam	1	2	(1)
Louisburg sandy loam	1	2	(1)
Madison gravelly sandy loam	2	3	5
Madison sandy clay loam	1	3	5
Madison sandy loam	2	3	5
Wehadkee soils	2	3	4
Wickham clay loam	1	3	5
Wickham fine sandy loam	2	3	5

[1] Roots generally do not penetrate below a depth of 24 inches.

TABLE 9.—*Probabilities of drought days on soils of different moisture-storage capacities*

Month [1]	Probability	Minimum drought days if soil has a moisture-storage capacity of [2]—				
		1 inch	2 inches	3 inches	4 inches	5 inches
April	1 in 10	16	0	0	0	0
	2 in 10	14	0	0	0	0
	3 in 10	12	0	0	0	0
	5 in 10	9	0	0	0	0
May	1 in 10	25	24	22	14	7
	2 in 10	22	20	16	9	0
	3 in 10	20	17	11	5	0
	5 in 10	16	12	0	0	0
June	1 in 10	24	23	23	21	18
	2 in 10	21	20	19	17	14
	3 in 10	20	18	17	14	11
	5 in 10	17	14	12	10	6
July	1 in 10	22	21	19	19	18
	2 in 10	19	17	15	15	14
	3 in 10	17	14	12	12	11
	5 in 10	14	9	8	7	6
August	1 in 10	22	19	18	17	16
	2 in 10	18	15	13	12	11
	3 in 10	16	12	10	8	7
	5 in 10	13	7	0	0	0
September	1 in 10	24	22	21	20	18
	2 in 10	21	18	16	15	13
	3 in 10	18	15	12	11	8
	5 in 10	16	10	7	0	0
October	1 in 10	28	28	25	25	24
	2 in 10	24	22	19	18	16
	3 in 10	20	18	15	12	10
	5 in 10	15	11	8	0	0

[1] Months of January, February, March, November, and December are not shown, because crops are rarely damaged by drought in these months.

[2] Moisture-storage capacity of soil is expressed as the inches of rainfall or irrigation water that a soil can hold and make available to plants.

Woodland [4]

Loblolly pine and shortleaf pine originally covered the uplands of Hart County. Yellow-poplar, gum, and oak grew on the bottom lands. By 1920 most of the original

[4] THOMAS A. MCFARLAND, forester, Soil Conservation Service, assisted in the preparation of this section.

timber had been cut. The higher areas and the eroded agricultural areas reseeded naturally to shortleaf pine, and the lower areas to loblolly pine. The second-growth pine was cut heavily in the 1930's and 1940's. Low-grade oak and hickory are now growing in some of these areas.

Approximately 34 percent of the total land area in Hart County is now woodland. It consists of privately owned tracts of no more than 200 acres. Two stationary sawmills in the county have furnished a dependable market for sawtimber for the past 20 years. Pulpwood has become important in the economy of the county in recent years.

Soils differ in capacity to produce trees, both because of differences in natural properties and environment and because of changes resulting from past use. Important among the factors to be considered in planning woodland management are site index, plant competition, equipment limitation, seedling mortality, windthrow hazard, and erosion hazard.

SITE INDEX.—A site index for a given soil is the average height, in feet, that the better trees (dominant and co-dominant) of specified kinds growing on that soil will attain in 50 years. It depends mainly on the capacity of the soil to supply moisture and to provide growing space for tree roots. Site index is a means of measuring the potential productivity of a site.

PLANT COMPETITION.—A site that has been disturbed by fire, cutting, or other operations may be invaded by shrubs, vines, grass, or undesirable species of trees. Competition from the invading vegetation hinders the establishment and growth of desirable trees.

A plant competition rating of slight indicates that invasion by undesirable species does not impede the natural regeneration and growth of the designated species of trees. No special management is needed.

A rating of moderate indicates that competition does not ordinarily prevent the establishment of adequate stands of the designated species of trees. Development of a normal, fully stocked stand may be delayed because the establishment of the seedlings is delayed and the early growth is slower. Some special management is needed.

A rating of severe indicates that natural regeneration cannot be relied upon. If seedlings are planted, competition should be controlled by careful preparation of the site and by special management practices that include controlled burning, spraying with chemicals, girdling, and replanting trees where needed.

EQUIPMENT LIMITATION.—Drainage, slope, number or size of stones, soil texture, or other soil characteristics or topographic features may restrict or prohibit the use of equipment commonly used in woodland management, in tree planting, or in tree harvesting. Different soils may require different kinds of equipment, or different methods of operation, or may be restricted at different seasons.

An equipment limitation rating of slight indicates that there is no special problem in the use of equipment at any time of the year. The structure and stability of the soil is not damaged by wood roads and skid trails.

A rating of moderate indicates that not all types of equipment can be used and that there are periods of no more than 3 months when equipment cannot be used. The slope range is less than 12 percent, and wood roads, landings, and skid trails require simple maintenance treatments.

A rating of severe indicates that the type of equipment that can be used is limited by steep slopes or by periods of high water or wetness that last more than 3 months. Use of equipment on such soils can cause serious damage to structure and stability.

SEEDLING MORTALITY.—Even when healthy seedlings of the proper grade are correctly planted and the environment is normal, some will fail to survive, because of unfavorable characteristics of the soil in which they are planted.

A rating of slight for seedling mortality indicates there is no special problem. Ordinarily, losses are not more than 25 percent of the planted stock.

A rating of moderate indicates that losses are between 25 and 50 percent of the planted stock and that some replanting is needed.

A rating of severe indicates that more than half of the planted stock is likely to die, and that special site preparation, replanting, and superior planting techniques are necessary for adequate and immediate restocking.

WINDTHROW HAZARD.—Soil characteristics affect the development of tree roots, and this in turn determines the resistance of a tree to the force of the wind. It is important to know the degree of this hazard when choosing tree species for planting or when planning release cuttings and harvest cuttings.

A rating of slight indicates that the roots of the desired species of trees develop normally and that windthrow is not common. Individual trees would remain standing, even if the trees on all sides were removed.

A rating of moderate indicates that the trees would remain standing unless the wind velocity was high and the soil was excessively wet.

A rating of severe indicates that the soil does not allow adequate rooting for stability. A high water table, a hardpan, or bedrock may restrict the depth of roots. Individual trees are likely to be blown over if the trees on all sides are removed.

EROSION HAZARD.—It is possible to protect woodland from erosion by growing certain species of trees, by adjusting the rotation age and cutting cycles, and by using special techniques in management.

On level and nearly level soils, the erosion hazard normally is slight. On gently sloping to moderately sloping soils that have a medium-textured surface layer, the erosion hazard is normally moderate to severe.

On gently or moderately sloping soils that have a very slowly permeable subsurface horizon or a coarse-textured surface horizon, and on steep soils, the erosion hazard is severe or very severe.

Woodland suitability groups

On the following pages the nine woodland suitability groups of Hart County are described, average site indexes are given, and the other factors considered in placing the soils in the respective groups are rated as slight, moderate, or severe, in accordance with the foregoing definitions.

Table 10 gives site indexes and figures on yearly growth of the principal species for the soils of each suitability group.

Because trees suitable for commercial use do not normally grow on them, the following land types are not included in any woodland suitability group: Gullied land (Gul), Mine pits and dumps (Mpd), and Rock land (Roc).

TABLE 10.—*Site index and rate of growth for commercially important trees*

Woodland group	Important trees [1]	Average site index [2]	Yearly growth [3]
			Cords per acre
Group 1: Deep, highly productive, well-drained soils on first bottoms.	Yellow-poplar	110	2. 1
	Sweetgum	100	(4)
	Loblolly pine	102	2. 1
	Shortleaf pine	86	1. 8
	White oak	80	(4)
Group 2: Deep, productive, well-drained soils on uplands; moderately permeable, slightly eroded to moderately eroded.	Loblolly pine	82	1. 5
	Yellow-poplar	80	1. 2
	Shortleaf pine	71	1. 4
	Red oak	70	. 6
Group 3: Deep, moderately productive, moderately well drained and well drained soils on stream terraces.	Loblolly pine	75	1. 3
	Shortleaf pine	68	1. 3
	Red oak	65	. 5
Group 4: Deep, well-drained, moderately permeable, severely eroded soils; sandy clay loam and clay loam surface layer.	Loblolly pine	74	1. 2
	Shortleaf pine	66	1. 2
	Virginia pine	70	1. 2
Group 5: Shallow, excessively drained, moderately permeable soils on uplands; coarse-textured surface layer.	Loblolly pine	78	1. 4
	Shortleaf pine	69	1. 3
Group 6: Shallow, somewhat poorly drained, mottled soil on uplands; compact subsoil.	Loblolly pine	72	1. 1
	Shortleaf pine	63	1. 1
	Sweetgum	75	(4)
	Red oak	70	. 6
Group 7: Slowly permeable, very poorly drained land type; fine-textured, plastic subsoil.	Loblolly pine	68	1. 1
	Shortleaf pine	60	1. 1
Group 8: Shallow or moderately shallow, unproductive soils on uplands.	Loblolly pine	63	. 9
	Shortleaf pine	55	. 9
	Virginia pine	60	1. 0
Group 9: Poorly drained and somewhat poorly drained soils on first bottoms.	Loblolly pine	88	1. 5
	Shortleaf pine	79	1. 5
	Sweetgum	90	(4)
	Blackgum	80	(4)
	Water oak	80	(4)

[1] Species of greatest commercial value.

[2] Average height of trees at 50 years of age. These values are based on site index measurements in existing stands growing on the soils designated, on published research applicable to the area, and on experience and judgment. They are the best current information but are subject to change as more data become available.

[3] Average yearly growth per acre, in standard rough cords to age 35; fully stocked stands without intensive management. Adapted from USDA Misc. Pub. No. 50, USDA Tech. Bul. 560, N.C. State College Tech. Bul. No. 100, and unpublished manuscript by E. S. McCarthy.

[4] Adequate growth figures not available.

WOODLAND SUITABILITY GROUP 1

This group consists of highly productive, deep, well-drained soils on first bottoms and in depressions. The soils are—

- Alm Alluvial land.
- Bfs Buncombe loamy sand.
- Cga Congaree sandy loam, local alluvium.
- Cos Congaree soils.

The average site index is 102 for loblolly pine (fig. 6) and 86 for shortleaf pine.

Plant competition is the only soil-related management problem of any significance. If the overstory has been removed, this problem may be severe. Clearing, harrowing, furrowing, burning, poisoning, and planting may be necessary to control undesirable plants and ensure a well-stocked stand.

There is a moderate limitation on the use of equipment, since the soils are wet for short periods during winter. There is no erosion hazard, no windthrow hazard, no drought hazard, and no special problem of seedling mortality.

WOODLAND SUITABILITY GROUP 2

This group consists of productive, deep, well-drained, moderately permeable soils on uplands. The soils are—

- AmB Appling sandy loam, 2 to 6 percent slope.
- AmB2 Appling sandy loam, 2 to 6 percent slopes, eroded.
- AmC2 Appling sandy loam, 6 to 10 percent slopes, eroded.
- CYB Cecil sandy loam, 2 to 6 percent slopes.
- CYB2 Cecil sandy loam, 2 to 6 percent slopes, eroded.
- CYC2 Cecil sandy loam, 6 to 10 percent slopes, eroded.
- CYE2 Cecil sandy loam, 10 to 25 percent slopes, eroded.
- GhB2 Grover sandy loam, 2 to 6 percent slopes, eroded.
- GhC2 Grover sandy loam, 6 to 10 percent slopes, eroded.
- LyB2 Lloyd soils, 2 to 6 percent slopes, eroded.
- LyC2 Lloyd soils, 6 to 10 percent slopes, eroded.
- MDB2 Madison gravelly sandy loam, thin solum, 2 to 6 percent slopes, eroded.
- MDC2 Madison gravelly sandy loam, thin solum, 6 to 10 percent slopes, eroded.
- MDD2 Madison gravelly sandy loam, thin solum, 10 to 15 percent slopes, eroded.
- MDE2 Madison gravelly sandy loam, thin solum, 15 to 25 percent slopes, eroded.
- MgB Madison sandy loam, 2 to 6 percent slopes.
- MgB2 Madison sandy loam, 2 to 6 percent slopes, eroded.
- MgC2 Madison sandy loam, 6 to 10 percent slopes, eroded
- MgD2 Madison sandy loam, 10 to 15 percent slopes, eroded.
- MgE2 Madison sandy loam, 15 to 25 percent slopes, eroded.

The average site index is 82 for loblolly pine and 71 for shortleaf pine.

Plant competition is moderate on the gentler slopes and severe in wet areas at the base of the stronger slopes. Removal of competing vegetation generally improves growing conditions for the desirable species. Seedling mortality is no problem. Either planting or natural reseeding ordinarily provides satisfactory restocking. The erosion hazard is slight, but a ground cover should be maintained. The windthrow hazard is slight. There is no equipment limitation. Damage from droughts is unlikely, because the moisture supply is always adequate.

WOODLAND SUITABILITY GROUP 3

This group consists of moderately productive, deep, moderately well drained and well drained soils on stream terraces. The soils are—

- AkB Altavista fine sandy loam, 2 to 6 percent slopes.
- WgB2 Wickham fine sandy loam, 2 to 6 percent slopes, eroded.

The average site index is 75 for loblolly pine and 68 for shortleaf pine.

Plant competition is slight after the overstory has been removed. Seedling mortality is moderate. Natural reproduction cannot always be relied upon for restocking.

Figure 6.—**A well-managed stand of loblolly pine on a soil of woodland suitability group 1.**

Losses of between 25 and 50 percent of planted stock are to be expected, and some replanting may be required. The erosion hazard is slight or moderate. Extended droughts cause slight to moderate damage. Windthrow is no problem; trees can be expected to withstand normal winds even after a stand is thinned. The equipment limitation is slight.

WOODLAND SUITABILITY GROUP 4

This group consists of deep, well-drained, moderately permeable soils that are severely eroded. The soils are—

- AnB3 Appling sandy clay loam, 2 to 6 percent slopes, severely eroded.
- AnC3 Appling sandy clay loam, 6 to 10 percent slopes, severely eroded.
- AnD3 Appling sandy clay loam, 10 to 15 percent slopes, severely eroded.
- CZB3 Cecil sandy clay loam, 2 to 6 percent slopes, severely eroded.
- CZC3 Cecil sandy clay loam, 6 to 10 percent slopes, severely eroded.
- CZD3 Cecil sandy clay loam, 10 to 15 percent slopes, severely eroded.
- CZE3 Cecil sandy clay loam, 15 to 25 percent slopes, severely eroded.
- LeB3 Lloyd clay loam, 2 to 6 percent slopes, severely eroded.
- LeC3 Lloyd clay loam, 6 to 10 percent slopes, severely eroded.
- LeE3 Lloyd clay loam, 10 to 25 percent slopes, severely eroded.
- MIB3 Madison sandy clay loam, 2 to 6 percent slopes, severely eroded.
- MIC3 Madison sandy clay loam, 6 to 10 percent slopes, severely eroded.
- MID3 Madison sandy clay loam, 10 to 15 percent slopes, severely eroded.
- MIE3 Madison sandy clay loam, 15 to 25 percent slopes, severely eroded.
- WhC3 Wickham clay loam, 6 to 10 percent slopes, severely eroded.

674438—63——4

The average site index is 74 for loblolly pine and 66 for shortleaf pine.

Plant competition is slight. Seedling mortality is moderate. Losses of 25 to 50 percent of planted seedlings are likely, and some replanting may be necessary to fill in openings. There is a moderate to severe limitation on the use of equipment because these clayey soils are slippery for a short time after a heavy rain. Operating equipment when the surface is wet and slippery is difficult, and it may injure tree roots and cause deterioration of the soil structure and stability. In some areas gullies prevent the movement of equipment. The erosion hazard is moderate on the gentler slopes and severe on the stronger slopes. The windthrow hazard is only slight. Extended droughts cause moderate losses of established trees.

WOODLAND SUITABILITY GROUP 5

This group consists of moderately permeable soils on uplands. The surface layer is thick and coarse textured. The soils are—

AoB Appling loamy coarse sand, thin solum, 2 to 6 percent slopes.
AoC Appling loamy coarse sand, thin solum, 6 to 10 percent slopes.
DoA Durham loamy coarse sand, thin solum, 0 to 2 percent slopes.
DoB Durham loamy coarse sand, thin solum, 2 to 6 percent slopes.
LnD2 Louisburg sandy loam, 6 to 15 percent slopes, eroded.
LnE2 Louisburg sandy loam, 15 to 25 percent slopes, eroded.

The average site index is 78 for loblolly pine and 69 for shortleaf pine.

Competition from undesirable plants is only a very slight hazard, because of the shortage of moisture in the surface layer. Seedling mortality is moderate, unless rainfall is plentiful during the planting season and throughout the first growing season. The sandy surface layer does not hold enough moisture to sustain seedlings through a drought. The erosion hazard, the windthrow hazard, and the equipment limitation are all slight. Extended droughts cause moderate damage.

WOODLAND SUITABILITY GROUP 6

This group consists of one somewhat poorly drained, shallow soil on uplands. The subsoil is mottled and compact. The soil is—

CiB Colfax sandy loam, 2 to 6 percent slopes.

The average site index is 72 for loblolly pine and 63 for shortleaf pine.

Plant competition is a moderate hazard. It does not prevent desirable species from becoming established, but it delays the regeneration of desirable trees and slows their growth. Seedling mortality is a moderate hazard. The shallow surface layer and the compact subsoil hinder root development. About 25 to 50 percent of the seedlings are likely to die. Replanting is often necessary to fill in openings because regeneration cannot always be relied upon. The equipment limitation, the erosion hazard, and the windthrow hazard are moderate. Extended droughts cause moderate losses of established trees.

WOODLAND SUITABILITY GROUP 7

This group consists of one very poorly drained land type that has a fine-textured, plastic subsoil and slow permeability. This land type is—

Lcn Local alluvial land, wet.

The average site index is 68 for loblolly pine and 60 for shortleaf pine.

An ample supply of moisture encourages invasion by undesirable plants. Plant competition is severe. It prevents adequate restocking through natural reseeding. Special preparation of sites and other special management practices are needed to control competing vegetation.

Seedling mortality is severe. These areas are usually either too wet or too dry to allow adequate preparation of seedbeds. More than 50 percent of the planted stock may die the first year. Natural regeneration cannot be relied upon for adequate restocking of the areas with pine.

The erosion hazard is slight. The windthrow hazard is severe because the fine-textured, plastic subsoil limits root development. The equipment limitation is moderate because the soil is wet and has a fine-textured, plastic subsoil.

WOODLAND SUITABILITY GROUP 8

This group consists of shallow or moderately shallow, rocky soils on uplands. The soils are—

LjD Louisa fine sandy loam, 6 to 15 percent slopes.
LjE Louisa fine sandy loam, 15 to 25 percent slopes.

The average site index is 63 for loblolly pine and 55 for shortleaf pine.

Plant competition is slight because of the shallow surface layer and a shortage of moisture. Seedling mortality is severe. In a dry year, it may be more than 50 percent. The equipment limitation is severe because of strong slopes and rockiness. Root development is limited; consequently, there is a moderate windthrow hazard. The erosion hazard is moderate because of the strong slopes. Extended droughts may cause the loss of a considerable number of established trees.

WOODLAND SUITABILITY GROUP 9

This group consists of poorly drained and somewhat poorly drained soils on first bottoms. The soils are—

Avp Alluvial land, wet.
Cfs Chewacla soils.
Wed Wehadkee soils.

The average site index is 88 for loblolly pine and 79 for shortleaf pine.

Plant competition is severe. Excessive moisture encourages the growth of undesirable plants, which interfere with the establishment of desirable species. Seedling mortality is moderate. Wetness may cause the loss of 25 to 50 percent of seedlings. The equipment limitation is severe because there are frequent heavy rains after which no logging equipment can be used for long periods. Shallow rooting in these wet soils results in a slight to moderate windthrow hazard. The erosion hazard is only slight. There is little danger of damage by drought because these soils are always wet.

Wildlife and Fish [5]

Most of the soils of Hart County are suited to, and support, one or more species of wildlife. Some species frequent woodland; others prefer open farmland; and many require a water habitat.

Bobwhites, mourning doves, rabbits, squirrels, and nongame birds of many kinds are common throughout the county. Deer and wild turkey require extensive areas of well-watered woodland, such as the area surrounding the Hartwell Reservoir. The long, narrow bottom lands along the streams are well suited to wild ducks and beavers. The Hartwell Reservoir and farm ponds provide excellent fishing. There were about 350 farm ponds in the county at the time of this survey, and about 25 are being added each year.

Practical help in planning and establishing a habitat for fish or wildlife may be obtained from the work unit conservationist of the Soil Conservation Service.

[5] Information compiled by R. D. WELLS, soil scientist, and VERNE E. DAVISON, Washington field biologist, Soil Conservation Service, was used in the preparation of this section.

Wildlife suitability groups

The soils of Hart County have been placed in eight groups on the basis of their suitability as habitats for specified kinds of wildlife. These eight wildlife suitability groups are described in the following pages. Table 11 rates the suitability of specific plants to the soils of each group. It also rates the suitability of each of these plants as food for particular kinds of birds and animals. Cover for wildlife is no problem. The climate is such that cover can be grown readily if needed.

The following are not included in any wildlife suitability group: Buncombe loamy sand, Rock land, and Mine pits and dumps.

A summary of the food and habitat needs of the more important wildlife species in Hart County follows:

Beaver.—Beavers eat only vegetation, mostly bark, roots, and green plants. Tender bark or the cambium of alder, ash, birch, cottonwood, maple, pine, sweetgum, and willow are their principal tree foods. Beavers also eat the tender shoots of elder, honeysuckle, grasses, and weeds. Acorns and corn also are choice foods. The chief feeding areas are within 150 feet of water.

Bobwhite.—Choice foods are acorns, beechnuts, blackberries, browntop millet, wild black cherries, corn, cowpeas, dewberries, flowering dogwood, annual lespedeza, bicolor lespedeza, mulberries, pecans, pine, common ragweed, sweetgum, and tickclover. Bobwhite eat many insects. The food must be close to vegetation that provides shade and protection from predators and adverse weather.

Deer.—Choice foods are acorns, bahiagrass, clover, corn, cowpeas, greenbrier, honeysuckle, annual lespedeza, bicolor lespedeza, oats, rescuegrass, ryegrass, and wheat. Cover requirements usually are met in woodlands of 500 acres or more.

Dove, Mourning.—Choice foods are browntop millet, corn, Japanese millet, pine, common ragweed, sweetgum, and wheat. Doves eat no insects, green leaves, or fruits. They drink water daily.

Duck.—Choice foods are acorns, beechnuts, browntop millet, corn, Japanese millet, and smartweed. These foods must be covered with water to be readily available to ducks. Occasionally ducks will eat acorns and corn on dry land.

Rabbit.—Cover, such as a blackberry or plum thicket, is a requirement in rabbit habitats. Choice foods are clover, winter grasses, and other succulent vegetation.

Squirrel.—Choice foods are acorns, beechnuts, blackgum, black cherries, corn, flowering dogwood, hickory nuts, mulberries, pecans, and pine seed.

Turkey, Wild.—Turkeys generally survive only in areas of woodland that cover 2,000 acres or more. Turkeys need surface water for daily drinking. They often roost in large trees over or near the water. Choice foods are insects, acorns, bahiagrass, beechnuts, blackberries, dewberries, browntop millet, clover leaves, corn, cowpeas, flowering dogwood, wild grapes, hackberries, mulberries, oats, pecans, pine, rescuegrass, ryegrass, and wheat.

Nongame Birds.—Different species of nongame birds have different food requirements. Several species eat nothing but insects. A few eat insects and fruits. Others eat insects, acorns, other nuts, and fruit. There are numerous exceptions to the general ratings given in table 11.

Fish.—The principal game fish in the farm ponds and streams are bass, bluegill, and channel catfish. The choice foods of bluegill are aquatic worms and insects and their larvae. Bass and channel catfish feed on small fish. The amount of food depends on the fertility of the water, on the nature of the soils of the watershed, and somewhat on the nature of the soils in the bottom of the pond. For the most part, the ponds in Hart County are low in fertility and the surrounding soils are acid. Consequently, fertilizer and lime are needed to ensure the production of an adequate supply of food for fish.

WILDLIFE SUITABILITY GROUP 1

This group consists of deep, mostly well-drained soils on uplands and stream terraces. The slope range is 0 to 10 percent. The surface layer ranges from fine sandy loam to loamy coarse sand. A few areas are gravelly. The subsoil is moderately permeable clay to sandy clay loam. These soils are easily worked. In most areas the available moisture capacity is moderate to moderately high, but it is low in the surface layer of some of the loamy coarse sands. The erosion hazard is slight to moderate. The soils are—

Altavista fine sandy loam, 2 to 6 percent slopes.
Appling loamy coarse sand, thin solum, 2 to 6 percent slopes.
Appling loamy coarse sand, thin solum, 6 to 10 percent slopes.
Appling sandy loam, 2 to 6 percent slopes.
Appling sandy loam, 2 to 6 percent slopes, eroded.
Appling sandy loam, 6 to 10 percent slopes, eroded.
Cecil sandy loam, 2 to 6 percent slopes.
Cecil sandy loam, 2 to 6 percent slopes, eroded.
Cecil sandy loam, 6 to 10 percent slopes, eroded.
Durham loamy coarse sand, thin solum, 0 to 2 percent slopes.
Durham loamy coarse sand, thin solum, 2 to 6 percent slopes.
Grover sandy loam, 2 to 6 percent slopes, eroded.
Grover sandy loam, 6 to 10 percent slopes, eroded.
Lloyd soils, 2 to 6 percent slopes, eroded.
Lloyd soils, 6 to 10 percent slopes, eroded.
Madison gravelly sandy loam, thin solum, 2 to 6 percent slopes, eroded.
Madison gravelly sandy loam, thin solum, 6 to 10 percent slopes, eroded.
Madison sandy loam, 2 to 6 percent slopes.
Madison sandy loam, 2 to 6 percent slopes, eroded.
Madison sandy loam, 6 to 10 percent slopes, eroded.
Wickham fine sandy loam, 2 to 6 percent slopes, eroded.

These soils comprise slightly more than half the county, and about 65 percent of the acreage is cultivated or pastured. They are suited to many plants that provide choice food for several species of wildlife. Because of their position and slope, these soils are generally not suited to flooding for duck fields. There are streams that can be dammed to form ponds.

WILDLIFE SUITABILITY GROUP 2

This group consists of deep, well-drained soils on uplands. The slope range is 10 to 25 percent. The surface layer is sandy loam or gravelly sandy loam. The subsoil is moderately permeable clay loam or sandy clay loam. Because of steep slopes, these soils are difficult to work and are highly susceptible to erosion. The available moisture capacity is moderate. The soils are—

Cecil sandy loam, 10 to 25 percent slopes, eroded.
Madison gravelly sandy loam, thin solum, 10 to 15 percent slopes, eroded.
Madison gravelly sandy loam, thin solum, 15 to 25 percent slopes, eroded.
Madison sandy loam, 10 to 15 percent slopes, eroded.
Madison sandy loam, 15 to 25 percent slopes, eroded.

TABLE 11.—*Suitability of plants*

[Absence of rating indicates plant may be eaten in only small amounts or that its use by wildlife is unknown. "Choice" means that the

Plant	Suitability of plant to soils, by wildlife suitability groups							
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Bahiagrass	Suited	Not suited	Marginal	Not suited	Marginal	Suited	Marginal	Not suited
Beech	Marginal	Marginal	Not suited	Not suited	Not suited	Suited	Marginal	Not suited
Blackberry	Suited	Suited	Marginal	Not suited	Marginal	Suited	Suited	Not suited
Blackgum	Suited	Suited	Not suited	Not suited	Not suited	Suited	Suited	Not suited
Browntop millet	Suited	Not suited	Marginal	Not suited	Marginal	Suited	Suited	Not suited
Buttonclover	Suited	Not suited	Marginal	Not suited	Not suited	Suited	Marginal	Not suited
Cherry, black (wild)	Suited	Suited	Not suited	Not suited	Marginal	Suited	Marginal	Not suited
Clover, crimson	Suited	Not suited	Marginal	Not suited	Marginal	Suited	Marginal	Not suited
Clover, white	Suited	Not suited	Not suited	Not suited	Not suited	Suited	Suited	Marginal
Corn	Suited	Not suited	Marginal	Not suited	Marginal	Suited	Marginal	Not suited
Cowpeas	Suited	Not suited	Marginal	Not suited	Marginal	Suited	Marginal	Choice (seed).
Dewberry	Marginal	Marginal	Marginal	Marginal	Marginal	Marginal	Marginal	Not suited
Dogwood, flowering	Suited	Marginal	Marginal	Not suited	Suited	Suited	Marginal	Not suited
Fescuegrass, tall	Marginal	Marginal	Marginal	Not suited	Not suited	Suited	Suited	Marginal
Grapes, wild	Suited	Suited	Marginal	Marginal	Marginal	Suited	Marginal	Not suited
Greenbrier	Suited	Marginal	Marginal	Marginal	Marginal	Suited	Marginal	Not suited
Hackberry	Suited	Marginal	Marginal	Not suited	Not suited	Suited	Marginal	Not suited
Hickory	Suited	Suited	Not suited	Not suited	Marginal	Suited	Marginal	Not suited
Honeysuckle	Suited	Not suited	Marginal	Not suited	Not suited	Suited	Marginal	Not suited
Japanese millet	Suited	Not suited	Not suited	Not suited	Not suited	Suited	Suited	Suited
Lespedeza, annual	Suited	Marginal	Suited	Marginal	Marginal	Suited	Marginal	Not suited
Lespedeza, bicolor	Suited	Marginal	Suited	Marginal	Marginal	Suited	Not suited	Not suited
Mulberry	Suited	Marginal	Not suited	Not suited	Not suited	Suited	Marginal	Not suited
Oak[2]	Suited	Marginal	Not suited	Not suited	Marginal	Suited	Marginal	Suited[3]
Oats	Suited	Not suited	Marginal	Not suited	Marginal	Suited	Marginal	Marginal
Pecan	Marginal	Marginal	Not suited	Not suited	Marginal	Suited	Marginal	Not suited
Pine (loblolly and shortleaf).	Suited	Suited	Marginal	Marginal	Marginal	Suited	Marginal	Not suited
Ragweed, common	Suited	Not suited	Marginal	Not suited	Not suited	Suited	Not suited	Not suited

See footnotes at end of table.

to soils and as food for wildlife

plant is attractive and nutritious for that kind of wildlife; "fair" means that the plant is eaten when the choice foods are unavailable]

Suitability of plant as food for—									
Bobwhite	Deer	Dove	Duck	Rabbit	Squirrel	Turkey	Nongame birds [1]		
							Fruit eaters	Grain and seed eaters	Nut and acorn eaters
	Choice (forage).	Fair (seed)				Choice (seed).		Fair (seed)	
Choice (nut).	Fair (nut)		Choice (nut).		Choice (nut).	Choice (nut).			Choice (nut).
Choice (fruit).	Fair (forage).				Fair (fruit)	Choice (fruit).	Choice (fruit).		
Fair (fruit).					Choice (fruit).	Fair (fruit).	Choice (fruit).		Fair (fruit).
Choice (seed).		Choice (seed).	Choice (seed).			Choice (seed).		Choice (seed).	
	Choice (forage).			Choice (forage).		Choice (forage).			
Choice (fruit).					Choice (fruit).	Fair (fruit).	Choice (fruit).		Fair (fruit).
Fair (forage).	Choice (forage).			Choice (forage).		Choice (forage).			
Fair (forage).	Choice (forage).			Choice (forage).		Choice (forage).			
Choice (seed).	Choice (seed).	Choice (seed).	Choice (seed).	Choice (seed).	Choice (seed).	Choice (seed).		Choice (seed).	Fair (seed).
Choice (seed).	Choice	Fair (seed)		Choice		Choice (seed).			
Choice (fruit).					Fair (fruit).	Fair (fruit).	Choice (fruit).		
Choice (fruit).					Choice (fruit).	Choice (fruit).	Choice (fruit).		
	Fair (forage).			Fair (forage).		Fair (forage).			
					Fair (fruit).	Choice (fruit).	Choice (fruit).		
	Choice (forage).			Choice (forage).					
Fair (fruit).					Fair (fruit).	Choice (fruit).	Choice (fruit).		
					Choice (nut).	Fair (nut)			Choice (nut).
	Choice (forage).			Fair (forage).					
Choice (seed).		Choice (seed).	Choice (seed).			Fair (seed)		Choice (seed).	
Choice (seed).	Choice (forage).			Fair (forage).		Fair (forage).			
Choice (seed).	Choice (forage).			Fair (forage).					
Choice (fruit).	Fair (fruit)				Choice (fruit).	Choice (fruit).	Choice (fruit).		
Choice (acorns).	Choice (acorns).		Choice (acorns).		Choice (acorns).	Choice (acorns).			Choice (acorns).
Fair (seed)	Choice (forage).	Fair (seed)		Choice (forage).		Choice (forage).		Choice (seed).	
Choice (nut).	Fair (nut)				Choice (nut).	Choice (nut).			Choice (nut).
Choice (seed).		Choice (seed).			Choice (seed).	Choice (seed).		Choice (seed).	Choice (seed).
Choice (seed).		Choice (seed).						Choice (seed).	

TABLE 11.—*Suitability of plants*

[Absence of rating indicates plant may be eaten in only small amounts or that its use by wildlife is unknown. "Choice" means that the

Plant	Suitability of plant to soils, by wildlife suitability groups							
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Rescuegrass	Suited	Not suited	Marginal	Not suited	Not suited	Suited	Marginal	Not suited
Ryegrass	Suited	Not suited	Marginal	Not suited	Marginal	Suited	Marginal	Not suited
Smartweed	Not suited	Not suited	Not suited	Not suited	Not suited	Marginal	Suited	Suited
Sorghum, grain [4]	Not suited	Not suited	Not suited	Not suited	Not suited	Not suited	Not suited	Not suited
Sweetgum	Suited	Suited	Marginal	Not suited	Marginal	Suited	Suited	Marginal
Tickclover (beggarlice)	Suited	Marginal	Suited	Marginal	Marginal	Suited	Not suited	Not suited
Wheat	Suited	Not suited	Marginal	Not suited	Marginal	Suited	Not suited	Not suited

[1] Bluebirds, catbirds, mockingbirds, and waxwings are some of the birds that eat fruit. The grain and seed eaters are the blackbirds, cardinals, meadowlarks, sparrows, and towhees. Chickadees, grackles, bluejays, titmice, and woodpeckers eat nuts and acorns.

[2] The oak trees that are suitable are the black oak, blackjack oak, northern red oak, pin oak, post oak, sawtooth oak, scarlet oak, Shumard oak, southern red oak, water oak, white oak, and willow oak.

These soils are extensive and are well distributed throughout the county. Much of the acreage is wooded. Because of steep slopes, these soils are marginal for annual lespedeza and generally unsuited to other annual plants. They are marginal for perennial grasses, lespedeza, and some woody plants. They are suited to blackgum, wild black cherry, flowering dogwood, hickory, and pine. There are many streams that can be dammed to form ponds.

WILDLIFE SUITABILITY GROUP 3

This group consists of deep, well-drained, severely eroded soils on uplands and high stream terraces. The slope range is 2 to 10 percent. The surface layer is sandy clay loam or clay loam. The subsoil is moderately permeable clay to clay loam. These soils have a moderate to moderately high available moisture capacity. Tilth is poor. The soils are—

Appling sandy clay loam, 2 to 6 percent slopes, severely eroded.
Appling sandy clay loam, 6 to 10 percent slopes, severely eroded.
Cecil sandy clay loam, 2 to 6 percent slopes, severely eroded.
Cecil sandy clay loam, 6 to 10 percent slopes, severely eroded.
Lloyd clay loam, 2 to 6 percent slopes, severely eroded.
Lloyd clay loam, 6 to 10 percent slopes, severely eroded.
Madison sandy clay loam, 2 to 6 percent slopes, severely eroded.
Madison sandy clay loam, 6 to 10 percent slopes, severely eroded.
Wickham clay loam, 6 to 10 percent slopes, severely eroded.

These soils are extensive throughout the county. Nearly all of the acreage has been cultivated in the past. Dewberry, lespedeza, pine, and tickclover are suited. Because of poor tilth and severe erosion, wildlife food plantings are difficult to establish and maintain. These soils are marginal for cultivated crops, clover, grasses, small grain, and most shrubs and hardwood trees. There are many streams that can be dammed to form ponds.

WILDLIFE SUITABILITY GROUP 4

This group consists of well-drained, severely eroded soils and areas of gullied land on uplands. The slope range is 10 to 25 percent. The surface layer ranges from sandy clay loam to clay. The subsoil is moderately permeable, but water moves into the soil slowly. Tilth is poor. The available moisture capacity is low to moderate. The erosion hazard is very severe. The soils are—

Appling sandy clay loam, 10 to 15 percent slopes, severely eroded.
Cecil sandy clay loam, 10 to 15 percent slopes, severely eroded.
Cecil sandy clay loam, 15 to 25 percent slopes, severely eroded.
Gullied land.
Lloyd clay loam, 10 to 25 percent slopes, severely eroded.
Madison sandy clay loam, 10 to 15 percent slopes, severely eroded.
Madison sandy clay loam, 15 to 25 percent slopes, severely eroded.

These soils are extensive throughout the county. Most of the acreage has been cultivated in the past, but much of it is reverting to pine. Because of severe erosion and moderate to steep slopes, establishing and maintaining vegetation is difficult. Generally, these soils are not suited to wildlife food plants. They are marginal for lespedeza, pine, and tickclover.

WILDLIFE SUITABILITY GROUP 5

This group consists of somewhat excessively drained upland soils that have little or no B horizon. The slope range is 6 to 25 percent. The surface layer is fine sandy loam or sandy loam. Depth to bedrock varies from a few inches to several feet. These soils are easily worked. The

to soils and as food for wildlife—Continued

plant is attractive and nutritious for that kind of wildlife; "fair" means that the plant is eaten when the choice foods are unavailable]

Suitability of plant as food for—									
Bobwhite	Deer	Dove	Duck	Rabbit	Squirrel	Turkey	Nongame birds [1]		
							Fruit eaters	Grain and seed eaters	Nut and acorn eaters
----------	Choice (forage).	----------	----------	Choice (forage).	----------	Choice (forage).	----------	----------	----------
----------	Choice (forage).	----------	----------	Choice (forage).	----------	Choice (forage).	----------	----------	----------
Fair (seed)	----------	----------	Choice (seed).	----------	----------	----------	----------	----------	----------
Choice (seed).	Choice (seed).	Choice (seed).	Choice (seed).	Choice (seed).	Choice (seed).	Choice (seed).	----------	Choice (seed).	
Choice (seed).	----------	Choice (seed).	----------	----------	Fair (seed)	Fair (seed)	----------	Choice (seed).	
Choice (seed).	Choice (forage).	----------	----------	----------	----------	Fair (seed)	----------	----------	----------
Choice (seed).	Choice (forage).	Choice (seed).	----------	Choice	----------	Choice	----------	Choice (seed).	----------

[3] The overcup oak is the only oak tree that is suited to group 8.

[4] Grain sorghum is a choice food of most wildlife that feed on grain. It is limited in value and suitability because the humid climate causes it to rot and because it attracts undesirable birds such as blackbirds, cowbirds and sparrows.

available moisture capacity is low. The erosion hazard is severe in cultivated areas. The soils are—

Louisa fine sandy loam, 6 to 15 percent slopes.
Louisa fine sandy loam, 15 to 25 percent slopes.
Louisburg sandy loam, 6 to 15 percent slopes, eroded.
Louisburg sandy loam, 15 to 25 percent slopes, eroded.

Because of the low available moisture capacity and the shallow root zone, these soils are marginal or poor for most plants that provide food for wildlife. They are better suited to pine and flowering dogwood than to any other wildlife food plants. Because they are shallow to bedrock, these soils are poor sites for ponds.

WILDLIFE SUITABILITY GROUP 6

This group consists of deep, well drained to moderately well drained soils around heads of drainageways and on first bottoms along creeks. The areas on first bottoms are flooded, usually for periods of less than 2 days, at intervals ranging from a few months to several years. The surface layer is silt loam to loamy sand. Beneath this is variable material. These soils are easily worked. The available moisture capacity is moderate to high. The soils are—

Alluvial land.
Congaree sandy loam, local alluvium.
Congaree soils.

Small areas of these soils are scattered throughout the county, and many areas are cultivated or used as pasture. Most of the choice wildlife food plants can be grown. Most areas can be flooded for duck fields. Sites suitable for ponds are common.

WILDLIFE SUITABILITY GROUP 7

This group consists of deep, somewhat poorly drained soils on first bottoms and around the head of drainageways. The surface layer ranges from silt loam to sandy loam. The subsoil is variable in texture. The first bottoms are flooded for periods of 1 to 5 days almost every year. If adequately drained, these soils are easily worked. The available moisture capacity is high or very high. The soils are—

Chewacla soils.
Colfax sandy loam, 2 to 6 percent slopes.

These soils are moderately extensive in this county, and much of the acreage is in pasture or woods. Because of poor drainage, a high water table, and flooding, only a few of the choice food plants are suited. Browntop millet, whiteclover, tall fescue, Japanese millet, and smartweed can be grown. Many areas are suitable for flooding for duck fields. Water can be impounded, or ponds can be dug on these soils.

WILDLIFE SUITABILITY GROUP 8

This group consists of poorly drained areas on first bottoms and in upland depressions. The surface layer is silty clay loam to loamy sand. Beneath this is gray material that ranges from loamy sand to silty clay and clay in texture. These soils are difficult to work. Because of a high water table, they have a shallow root zone. The first bottoms are flooded for periods of a few days to 2 or 3 weeks every year. The soils are—

Alluvial land, wet.
Local alluvial land, wet.
Wehadkee soils.

Because of poor drainage, a high water table, and flooding, these soils are suited to only a limited number of wildlife food plants. Japanese millet and smartweed can be grown, and also the woody plants eaten by beaver. Most areas are suitable for flooding for duck fields. Water can be impounded, or ponds can be dug.

Engineering Uses of the Soils [6]

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

This soil survey report contains information that engineers can use to—

1. Make soil and land use studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Make preliminary estimates of the soil properties that are important in planning agricultural drainage systems, farm ponds, sprinkler irrigation systems, and diversion terraces.
3. Make preliminary evaluations of soil and ground conditions that will aid in selecting highway, airport, pipeline, and cable locations and in planning detailed investigations at the selected locations.
4. Locate probable sources of gravel, sand, and other construction material.
5. Correlate performance of engineering structures with soil mapping units to develop information for overall planning that will be useful in designing structures and planning certain engineering practices.
6. Relate pavement performance to types of soil to develop information that will be useful in designing future roads and maintaining present roads.
7. Supplement the information obtained from other published maps and reports and aerial photographs to make maps and reports that can be used readily by engineers.
8. Develop other preliminary estimates for construction purposes pertinent to the particular areas.

This report will not eliminate the need for on-site sampling and testing of soils when the design and construction of specific engineering works are being considered. It should be used primarily for planning detailed field investigations to determine the condition of the soil material in place at the proposed site. The information in the report will enable soil engineers to concentrate on the most suitable soils, to take fewer soil samples, and to make an adequate investigation at minimum cost.

Some of the terms used by soil scientists may not be familiar to engineers, and some words—for example, *sand*, *silt*, *parent material*, and *structure*—may have special meanings in soil science. These terms, and other special terms used in this report, are defined in the Glossary at the back of this report.

Engineering classification systems

Two systems of classifying soils are in general use among engineers. Both are used in this report.

[6] JOE A. STEVENS, JR., agricultural engineer, Soil Conservation Service, assisted with the preparation of this subsection.

Most highway engineers classify soil materials in accordance with the system approved by the American Association of State Highway Officials (AASHO) (*2*). In this system, classification is based on physical properties of the soil materials and the field performance of the soils in highways. All soils are classified in seven principal groups. The groups range from A–1 (gravelly soils of high bearing capacity) to A–7 (clay soils having low strength when wet). Within each group, the relative engineering value of the soil material is indicated by a group index number. Group indexes range from 0 for the best materials to 20 for the poorest. The group index number, when used, is shown in parentheses after the soil group symbol; for example, A–2–4(0).

Some engineers prefer to use the Unified soil classification system established by the Waterways Experiment Station, Corps of Engineers (*9*). This system is based on identification of soils according to their performance as engineering construction materials. Soil materials are identified as coarse grained (8 classes), fine grained (6 classes), or highly organic. Estimated classifications of major horizons of the soils in Hart County, under both systems, are given in table 12.

Soil properties and engineering interpretations

The information and interpretations of most significance to engineers are presented in tables 12, 13, and 14. Additional information can be found in these sections of the report: "Descriptions of the Soils," "General Soil Map," and "Geology, Physiography, and Drainage." Brief explanations of how the information in the tables was obtained and explanations of the significance of some of the items follow.

ESTIMATED PROPERTIES OF THE SOILS.—Table 12 gives brief descriptions of the pertinent characteristics of the soils of each series and estimates of some of the physical properties that affect engineering work. The properties are those of the normal soil profiles, which are divided into layers significant to engineering. If test data are available, the average values from table 14 are shown. If test data are not available, the estimates shown are based on test data obtained from similar soils in this county or test data obtained from these soils in other counties and from past experience in engineering construction. Since the estimates are only for the normal soils, considerable variation from these values should be anticipated. More information on the range of properties of the soils can be obtained in other sections of the report.

The descriptions of the soil properties, such as drainage, listed in table 12 are related chiefly to agricultural uses. Statements as to color, texture, and location are of a general nature and may vary.

A depth of more than 8 feet to the seasonally high water table is described as "8+" because greater depths cannot be estimated accurately. The water table is usually highest during the winter months.

Because the resistance of the bedrock to weathering varies from place to place, the depth to bedrock varies in most of the soil series. In many places, soft, weathered rock extends to depths greater than those given in table 12.

The rate of permeability is based on the movement of water through the undisturbed soil material. The rate depends largely on the texture and structure of the soil.

Available moisture, measured in inches per inch of soil depth, is the approximate amount of capillary water in a soil that is wet to field capacity. When the soil is air dry, this amount of water will wet the soil material to a depth of 1 inch without deeper percolation.

The shrink-swell potential is an indication of the volume change to be expected with a change in moisture content. It is estimated primarily on the basis of the amount and type of clay present.

In general, soils classified as CH and A–7 have a high shrink-swell potential. Clean sands and gravels (single-grain structure) and those having small amounts of non-plastic to slightly plastic fines, as well as most other non-plastic to slightly plastic soil materials, have a low shrink-swell potential.

INTERPRETATIONS OF ENGINEERING PROPERTIES.—Table 13 gives estimates of the suitability of the soils of Hart County for highway construction and for specified engineering uses. It lists the soil features affecting suitability for sewage disposal, sprinkler irrigation, farm ponds, agricultural drainage, terraces, and waterways. Statements in this table are based on the known or estimated physical qualities of the soils and represent the judgment and opinions of engineers and soil scientists who have worked in the county or in other counties where the soils are similar.

The rating of the soil as to its susceptibility to frost action refers to detrimental effects of freezing and thawing as related to construction uses of the soil. It depends on the texture of the soil material and the depth to the water table during the freezing period. Silts and fine sands with a high water table are rated high.

The rating as to suitability for winter (or wet weather) grading applies only to the soil material and not to the bedrock. It depends largely on the texture of the soil material, its natural water content, and the depth to the water table. Clay soils are difficult to handle when wet and must be dried to proper moisture content for compaction. Therefore, these soils are rated poor. Fine sands and silts that have a high water table during the freezing period are also rated poor. In these soils, ice lenses can develop which may cause differential settlement when the ice melts.

The rating as to suitability for road subgrade refers to the surface on which road fill is placed after being cleared

674-438—63——3

TABLE 12.—*Brief description of soils and their*

Map symbol	Mapping unit	Depth to seasonally high water table	Depth to bedrock	Brief description of soil and site	Depth from surface (typical profile)
		Ft.	*Ft.*		*In.*
Alm Avp	Alluvial land. Alluvial land, wet.	0 to 6	8 to 20	Moderately well drained to somewhat poorly drained, mixed alluvial materials on first bottoms; soil materials are dominantly loamy sands, sandy loams, and clays.	0 to 36
AkB	Altavista fine sandy loam, 2 to 6 percent slopes.	6+	8 to 15	Moderately well drained soil on low stream terraces; 6 to 15 inches of fine sandy loam over about 3 feet of mottled, friable silty clay loam or sandy clay loam; beneath this, highly weathered residuum.	0 to 15 15 to 32 32 to 44+
AmB AmB2 AmC2 AnB3 AnC3 AnD3	Appling sandy loam, 2 to 6 percent slopes. Appling sandy loam, 2 to 6 percent slopes, eroded. Appling sandy loam, 6 to 10 percent slopes, eroded. Appling sandy clay loam, 2 to 6 percent slopes, severely eroded.[1] Appling sandy clay loam, 6 to 10 percent slopes, severely eroded.[1] Appling sandy clay loam, 10 to 15 percent slopes, severely eroded.[1]	6+	4 to 15	Well-drained soils on uplands; 5 to 10 inches of sandy loam or sandy clay loam over 2 to 3 feet of red and yellow, mottled, friable to firm, sandy clay loam to sandy clay; beneath this is residuum from granite, gneiss, or mica schist, ranging in thickness from a few inches to many feet.	0 to 7 7 to 44 44 to 48+
AoB AoC	Appling loamy coarse sand, thin solum, 2 to 6 percent slopes. Appling loamy coarse sand, thin solum, 6 to 10 percent slopes.	6+	3 to 15	6 to 12 inches of well-drained loamy coarse sand; otherwise like Appling sandy loams and sandy clay loams.	0 to 9 9 to 27 27 to 36+
Bfs	Buncombe loamy sand.	4 to 8	8 to 20	Excessively drained soil on first bottoms along larger streams; texture is loamy sand to a depth of more than 5 feet.	0 to 6 6 to 47+
CYB CYB2 CYC2 CYE2 CZB3 CZC3 CZD3 CZE3	Cecil sandy loam, 2 to 6 percent slopes. Cecil sandy loam, 2 to 6 percent slopes, eroded. Cecil sandy loam, 6 to 10 percent slopes, eroded. Cecil sandy loam, 10 to 25 percent slopes, eroded. Cecil sandy clay loam, 2 to 6 percent slopes, severely eroded. Cecil sandy clay loam, 6 to 10 percent slopes, severely eroded. Cecil sandy clay loam, 10 to 15 percent slopes, severely eroded. Cecil sandy clay loam, 15 to 25 percent slopes, severely eroded.	8+	6 to 15	Well-drained soils on uplands; 5 to 10 inches of sandy loam or sandy clay loam over 3 to 4 feet of friable to firm, red clay loam; beneath this is residuum from granite, gneiss, and some quartz mica schist.	0 to 10 10 to 48 48 to 56
Cfs	Chewacla soils.	0 to 2	8 to 20	Somewhat poorly drained soil on first bottoms; 6 to 12 inches of reddish-brown, friable silt loam or fine sandy loam over 2 to 3 feet of yellowish-red, mottled silt loam or silty clay loam; beneath this is variable alluvium.	0 to 6 6 to 36+
CiB	Colfax sandy loam, 2 to 6 percent slopes.	1 to 5	6 to 15	Somewhat poorly drained soil around head of drainageways; 7 to 10 inches of sandy loam over about 2 feet of sticky sandy clay; beneath this is residuum from granite.	0 to 10 10 to 28 28 to 30+
Cga	Congaree sandy loam, local alluvium.	3 to 8+	8 to 20	About 12 to 34 inches of yellowish-brown, well-drained soil material accumulated in upland depressions; beneath this, clay loam of the original soils.	0 to 34

See footnote at end of table.

estimated properties significant to engineering

Classification			Grain sizes			Permeability	Available moisture capacity	Reaction	Shrink-swell potential
USDA texture	Unified	AASHO	Passing No. 4 sieve (4.76 mm.)	Passing No. 10 sieve (2.0 mm.)	Passing No. 200 sieve (0.074 mm.)				
			Pct.	*Pct.*	*Pct.*	*In. per Hr.*	*In per In.*	*pH*	
Loamy sand to sandy loam.	SM	A-2 or A-4	95 to 100	95 to 100	25 to 50	5. 0 to 10. 0	0. 14	5. 1 to 5. 5	Low.
Fine sandy loam.	SM	A-2 or A-4	95 to 100	95 to 100	30 to 50	5. 0 to 10. 0	. 12	5. 1 to 5. 5	Low.
Sandy clay loam.	CL	A-6	95 to 100	95 to 100	55 to 75	0. 2 to 0. 8	. 13	5. 1 to 5. 5	Moderate.
Sandy clay loam.	SC, CL	A-4, A-6	95 to 100	95 to 100	40 to 60	0. 8 to 5. 0	. 10	5. 1 to 5. 5	Low to moderate.
Sandy loam	SM, SC	A-2-4, A-4	90 to 100	90 to 100	25 to 45	5. 0 to 10. 0	. 12	5. 1 to 5. 5	Low.
Sandy clay loam to clay.	CL, MH, ML.	A-6 or A-7	95 to 100	95 to 100	60 to 75	0. 2 to 2. 5	. 13	5. 1 to 5. 5	Moderate.
Clay loam	CL, CH	A-6, A-7-6	95 to 100	95 to 100	50 to 60	2. 5 to 10. 0	. 13	5. 1 to 5. 5	Moderate to high.
Loamy coarse sand.	SM, SC	A-1, A-2	95 to 100	95 to 100	15 to 25	8.0 to 12.0	. 08	4.5 to 5.0	Low.
Sandy clay loam.	CL	A-6 or A-7	95 to 100	95 to 100	60 to 75	0.2 to 2.5	. 13	5.1 to 5.5	Moderate.
Clay loam	CL	A-6, A-7	95 to 100	95 to 100	50 to 60	2.5 to 10.0	. 13	5.1 to 5.5	Moderate.
Loamy sand	SM	A-2-4	100	95 to 100	20 to 35	2.5 to 10.0	. 07	5.1 to 5.5	Low.
Loamy fine sand.	SM	A-2 or A-4	100	95 to 100	20 to 45	2.5 to 10.0	. 07	5.1 to 5.5	Low.
Sandy loam	SM, SC	A-2	95 to 100	90 to 100	20 to 45	5.0 to 10.0	. 13	5.5 to 5.9	Low.
Sandy clay loam to clay.	CL, CH	A-7	95 to 100	95 to 100	70 to 90	0.8 to 2.5	. 13	5.5 to 5.9	Moderate to high.
Sandy loam to sandy clay.	CL, CH	A-6, A-7	95 to 100	90 to 100	55 to 85	2.5 to 5.0	. 14	5.5 to 5.9	Moderate to high.
Silt loam to fine sandy loam.	ML	A-4	95 to 100	95 to 100	55 to 80	0. 8 to 2. 5	. 13	5. 1 to 5. 5	Low.
Silt loam to silty clay loam.	ML, SM	A-4	95 to 100	95 to 100	40 to 65	0. 8 to 2. 5	. 14	5. 1 to 5. 5	Low.
Sandy loam	SM	A-1 or A-4	95 to 100	90 to 100	20 to 40	2. 5 to 10. 0	. 11	5. 1 to 5. 5	Low.
Sandy clay loam.	CL, CH	A-7	95 to 100	95 to 100	55 to 75	0. 2 to 2. 5	. 13	4. 5 to 5. 0	Moderate to high.
Silty clay loam	ML, SM	A-4 or A-6	95 to 100	95 to 100	40 to 60	0. 8 to 5. 0	. 11	5. 1 to 5. 5	Low to moderate.
Sandy loam and loam.	SC	A-2, A-4, or A-6.	98 to 100	90 to 100	25 to 40	2. 5 to 5. 0	. 15	5. 6 to 6. 0	Low.

TABLE 12.—*Brief description of soils and their*

Map symbol	Mapping unit	Depth to seasonally high water table	Depth to bedrock	Brief description of soil and site	Depth from surface (typical profile)
		Ft.	*Ft.*		*In.*
Cos	Congaree soils.	2 to 5	8 to 20	Moderately well drained to well drained soils on first bottoms along the larger streams; 2 to 3 feet of reddish-brown, very friable sandy loam or friable silt loam over variable alluvium.	0 to 33 33 to 40+
DoA	Durham loamy coarse sand, thin solum, 0 to 2 percent slopes.	6+	4 to 15	Well-drained soils on uplands; 5 to 14 inches of loamy coarse sand over 1 to 2 feet of friable to firm sandy clay loam; beneath this is weathered granite from a few inches to several feet deep.	0 to 14
DoB	Durham loamy coarse sand, thin solum, 2 to 6 percent slopes.				14 to 46+
GhB2	Grover sandy loam, 2 to 6 percent slopes, eroded.	6+	5 to 15	Well-drained soils on uplands; 5 to 10 inches of sandy loam over yellowish-brown, very friable and firm sandy clay loam; many mica flakes, greasy feel; beneath this, weathered granite and mica schist from a few inches to several feet deep.	0 to 13 13 to 37
GhC2	Grover sandy loam, 6 to 10 percent slopes, eroded.				37 to 67
LyB2	Lloyd soils, 2 to 6 percent slopes, eroded.	8+	6 to 25	Well-drained soils on uplands; 5 to 9 inches of sandy loam to clay loam over 3 to 4 feet of dark-red, friable to firm clay loam to clay; beneath this, a thick layer of residuum from diorite, hornblende schist, and mica schist.	0 to 7 7 to 44
LyC2	Lloyd soils, 6 to 10 percent slopes, eroded.				
LeB3	Lloyd clay loam, 2 to 6 percent slopes, severely eroded.				44 to 48
LeC3	Lloyd clay loam, 6 to 10 percent slopes, severely eroded.				
LeE3	Lloyd clay loam, 10 to 25 percent slopes, severely eroded.				
Lcn	Local alluvial land, wet.	1 to 2	5 to 10	Very poorly drained soil material around head of drainageways; about 6 to 12 inches of sandy loam and loamy sand accumulated over original surface; 2 to 3 feet of grayish, sticky, heavy sandy clay; beneath this, residuum from granite and schist.	0 to 12 12 to 42
LjD	Louisa fine sandy loam, 6 to 15 percent slopes.	8+	1 to 4	Somewhat excessively drained soils on uplands; 5 to 15 inches of fine sandy loam over ½ to 1 foot of friable silt loam to silty clay loam; beneath this, mica schist bedrock.	0 to 15
LjE	Louisa fine sandy loam, 15 to 25 percent slopes.				15 to 23
LnD2	Louisburg sandy loam, 6 to 15 percent slopes, eroded.	8+	1 to 4	Somewhat excessively drained soils on uplands; 5 to 14 inches of sandy loam over ½ to 1½ feet of friable sandy clay loam to sandy loam; beneath this, a few inches of weathered granite, gneiss, and schist over mostly solid bedrock.	0 to 14 14 to 31
LnE2	Louisburg sandy loam, 15 to 25 percent slopes, eroded.				
MgB	Madison sandy loam, 2 to 6 percent slopes.	8+	6 to 15	Well-drained soils on uplands; 6 to 11 inches of sandy loam over 2 to 3 feet of friable to firm clay loam; beneath this, a thick layer of highly weathered sandy loam residuum from mica schist.	0 to 8 8 to 48
MgB2	Madison sandy loam, 2 to 6 percent slopes, eroded.				
MgC2	Madison sandy loam, 6 to 10 percent slopes, eroded.				48 to 56
MgD2	Madison sandy loam, 10 to 15 percent slopes, eroded.				
MgE2	Madison sandy loam, 15 to 25 percent slopes, eroded.				
MlB3	Madison sandy clay loam, 2 to 6 percent slopes, severely eroded.				
MlC3	Madison sandy clay loam, 6 to 10 percent slopes, severely eroded.				
MlD3	Madison sandy clay loam, 10 to 15 percent slopes, severely eroded.				
MlE3	Madison sandy clay loam, 15 to 25 percent slopes, severely eroded.				

See footnote at end of table.

estimated properties significant to engineering—Continued

Classification			Grain sizes			Permeability	Available moisture capacity	Reaction	Shrink-swell potential
USDA texture	Unified	AASHO	Passing No. 4 sieve (4.76 mm.)	Passing No. 10 sieve (2.0 mm.)	Passing No. 200 sieve (0.074 mm.)				
			Pct.	*Pct.*	*Pct.*	*In. per Hr.*	*In per In.*	*pH*	
Sandy loam	ML	A-4 or A-6	95 to 100	95 to 100	55 to 75	0. 8 to 5. 0	0. 16	5. 1 to 5. 5	Low.
Sandy clay loam.	SC, CL	A-4 or A-6	95 to 100	90 to 100	45 to 60	0. 8 to 2. 5	. 17	5. 1 to 5. 5	Low to moderate.
Loamy coarse sand.	SM	A-1, A-2	95 to 100	90 to 100	15 to 25	5. 0 to 10. 0	. 12	4. 5 to 5. 0	Low.
Sandy clay loam.	SC, SM	A-2, A-4	95 to 100	95 to 100	25 to 50	0. 8 to 2. 5	. 13	4. 5 to 5. 0	Moderate to low.
Sandy loam	SM	A-2	95 to 100	75 to 90	25 to 35	5. 0 to 10. 0	1. 4	5. 5 to 5. 9	Low.
Sandy clay	CL, CH	A-7	95 to 100	95 to 100	55 to 70	0. 2 to 2. 5	1. 5	5. 5 to 5. 9	Moderate to high.
Sandy loam to sandy clay.	SM	A-5	95 to 100	90 to 100	35 to 45	2. 5 to 10. 0	1. 6	4. 5 to 5. 0	Low.
Sandy loam	SM, SC	A-4	95 to 100	85 to 95	35 to 45	2. 5 to 5. 0	1. 3	5. 1 to 5. 5	Low.
Clay loam to clay.	MH, CH, CL.	A-7-6, A-7-5	95 to 100	95 to 100	60 to 70	0. 2 to 5. 0	1. 3	4. 5 to 5. 5	Moderate to high.
Clay loam	SM, ML, CL.	A-7-5, A-7-6	95 to 100	95 to 100	40 to 70	2. 5 to 10. 0	1. 3	4. 5 to 5. 5	Low to moderate.
Sandy loam and loamy sand.	SM	A-1, A-2, or A-4.	95 to 100	90 to 100	15 to 40	2. 5 to 10. 0	. 08	5. 1 to 5. 5	Low.
Sandy clay	CH	A-7	95 to 100	95 to 100	60 to 80	0. 5 to 2. 0	. 11	5. 1 to 5. 5	High.
Fine sandy loam.	SC, SM, ML, CL.	A-4 or A-6	90 to 100	75 to 100	40 to 60	5. 0 to 10. 0	. 13	5. 1 to 5. 5	Low to moderate.
Silty clay loam to silt loam.	MH, CH	A-7-6	90 to 100	95 to 100	70 to 80	0. 8 to 5. 0	. 13	5. 1 to 5. 5	Moderate to high.
Sandy loam	SM	A-2-4 or A-4	95 to 100	90 to 100	25 to 40	5. 0 to 10. 0	. 08	5. 1 to 5. 5	Low.
Sandy clay loam.	MH, CH	A-7-5	98 to 100	95 to 100	55 to 65	2. 5 to 5. 0	. 08	5. 1 to 5. 5	Moderate to high.
Sandy loam	SM	A-2 or A-4	95 to 100	95 to 100	30 to 50	2. 5 to 5. 0	. 13	5. 1 to 5. 5	Low.
Sandy clay loam to silty clay loam.	MH	A-5 or A-7	95 to 100	95 to 100	60 to 75	0. 8 to 2. 5	. 13	5. 1 to 5. 5	Moderate.
Sandy loam to silty clay loam.	ML, SM	A-2, A-4, A-5, or A-6.	90 to 100	95 to 100	30 to 55	2. 5 to 10. 0	. 10	4. 5 to 5. 5	Low.

TABLE 12.—*Brief description of soils and their*

Map symbol	Mapping unit	Depth to seasonally high water table	Depth to bedrock	Brief description of soil and site	Depth from surface (typical profile)
		Ft.	*Ft.*		*In.*
MDB2	Madison gravelly sandy loam, thin solum, 2 to 6 percent slopes, eroded.	8+	4 to 10	5 to 8 inches of gravelly sandy loam; about 20 percent of gravel ranging in size from 2 to 4 inches; otherwise like the Madison sandy loams and sandy clay loams.	0 to 8
MDC2	Madison gravelly sandy loam, thin solum, 6 to 10 percent slopes, eroded.				
MDD2	Madison gravelly sandy loam, thin solum, 10 to 15 percent slopes, eroded.				
MDE2	Madison gravelly sandy loam, thin solum, 15 to 25 percent slopes, eroded.				
Wed	Wehadkee soils.	0 to 2	8 to 20	Poorly drained soils on first bottoms; gray silt loam to silty clay or fine sandy loam to a depth of more than 3 feet; beneath this, mixed alluvium.	0 to 28
WgB2	Wickham fine sandy loam, 2 to 6 percent slopes, eroded.	8+	8 to 15	Well-drained soils on high or moderately high stream terraces; 5 to 10 inches of sandy loam to sandy clay loam over 2 to 4 feet of firm clay to clay loam.	0 to 7
WhC3	Wickham clay loam, 6 to 10 percent slopes, severely eroded.				7 to 52

[1] Test data is given in table 14.

and prepared for construction. Road fill is the embankment used to reduce grade and, in some cases, to provide drainage for the completed road. The suitability of the soil material for road subgrade and road fill depends largely on the texture of the soil material and its natural water content. Highly plastic soil material is rated poor for road subgrade and poor or fair for road fill, depending on the natural water content and the difficulty of handling, drying, and compacting the soil material.

Topsoil is surface soil material that is high in organic-matter content. It is used to topdress roadsides, gardens, and lawns.

Vertical alinement of highways calls for careful consideration as to the kind of soil material and the need for drainage. In many soils in Hart County, highway gradelines can be located anywhere on or in the soil. In other soils, a high water table, bedrock near the surface, presence of boulders in soil profile, presence of highly plastic clays or highly erodible soils in cut sections, and flooding have to be considered in determining the position of the gradeline.

In the column listing the soil features affecting suitability for sewage disposal are ratings that may help those who are selecting a homesite and those who are investigating the suitability of an area for real estate development.

Table 13 lists the soil features that affect the choice of site, the design, and the installation of conservation structures. The construction of ponds and terraces is hindered by rock outcrops. Permeable subsoil reduces the effectiveness of farm ponds. Shallow soils and soils that have a plastic subsoil limit the use of terraces. Most of the farmland in the county needs graded terraces that will control runoff and serve as guides for contour tillage. Table 13 gives the stability of the soils at regular terrace grades. Diversions, which are large vegetated channels used to intercept runoff water above cultivated fields, generally have a stronger gradient than terraces.

The ratings in the column showing suitability for agricultural drainage are based on the need for removal of surface or subsurface water and the possible difficulties in accomplishing this. The ratings for waterways refer to natural or constructed vegetated channels that flow straight down depressions in cultivated fields. On slopes of more than 2 percent, erosion can destroy waterways before vegetation has had time to become established.

Engineering test data

To help evaluate the soils for engineering purposes, soil samples from three profiles of one soil type were tested according to standard procedures. These samples were tested for moisture-density, volume change, grain-size distribution, liquid limit, and plasticity index. The test data are given in table 14. The data were obtained by mechanical analysis and by tests made to determine the liquid limit and the plastic limit.

Mechanical analysis, to determine the relative proportions of the different size particles making up the soil sample, was made by a combination of the sieve and hydrometer methods. Percentages of clay obtained by the hydrometer method should not be used as a basis for naming soil textural classes.

Liquid limit and plastic limit tests measure the effect of water on the consistence of soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from a solid to a semisolid, or plastic, state. As the moisture content is further increased, the

estimated properties significant to engineering—Continued

Classification			Grain sizes			Permeability	Available moisture capacity	Reaction	Shrink-swell potential
USDA texture	Unified	AASHO	Passing No. 4 sieve (4.76 mm.)	Passing No. 10 sieve (2.0 mm.)	Passing No. 200 sieve (0.074 mm.)				
			Pct.	*Pct.*	*Pct.*	*In. per Hr.*	*In per In.*	*pH*	
Gravelly sandy loam.	SM or CM.	A–1, A–2, or A–4.	95 to 100.	85 to 95..	20 to 45..	2. 5 to 10. 0	0. 13	5. 1 to 5. 5	Low.
Silty clay loam.	CL, CH....	A–6 or A–7...	100.....	100.....	80 to 100.	0. 5 to 0. 8	. 12	4. 5 to 5. 0	Moderate to high.
Fine sandy loam.	SM.....	A–2, A–4.....	95 to 100.	85 to 95..	30 to 50..	2. 5 to 10. 0	. 13	5. 1 to 5. 5	Low.
Sandy clay loam to clay loam.	CL, MH...	A–7.....	95 to 100.	90 to 100.	55 to 75..	0. 8 to 2. 5	. 13	5. 1 to 5. 5	Moderate.

material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the material passes from a solid to a plastic state. The liquid limit is the moisture content at which the material passes from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which the soil is in a plastic condition.

Descriptions of the Soils

In this section the soils of Hart County are described. Descriptions of the soil series, arranged in alphabetic order, give the characteristics that are common to all the soils in each series. Descriptions of the mapping units give the characteristics that differentiate types and phases within each series.

An important part of the soil descriptions is the soil profile, which is included in the description of the first mapping unit of each series. The profile is a record of what the soil scientist observed when he studied the particular soil in the field. All the soils of one series have essentially the same profile. Differences in surface texture, in slope, and in degree of erosion are usually evident from the names of the mapping units.

In describing the soils, some technical terms have been used, because there seems to be no other practical way to describe soils accurately and briefly. Such terms used in this report are defined in the Glossary.

The location and distribution of the individual soils are shown on the detailed map at the back of this report. The approximate acreage and proportionate extent of the soils are given in table 15.

Alluvial Land

Alluvial land (Alm).—This land type is on nearly level flood plains. It consists of stratified deposits of yellowish-brown to light brownish-gray sand, silt, and clay. Distinct mottles occur below a depth of 24 inches. Most of the alluvium has been moved only a few hundred yards from its source, or at most only a few miles. The slope range is 0 to 2 percent.

This unit varies in organic-matter content, in rate of infiltration, in permeability, and in available moisture capacity. Drainage is moderately good. The reaction is strongly acid.

Alluvial land is widely distributed in Hart County. It occurs principally on narrow strips along intermittent drainageways and small branches, in association with Cecil, Madison, and Appling soils. There are a few areas along the larger streams, in association with Congaree, Chewacla, and Buncombe soils.

Alluvial land is suited to pasture and to most locally grown crops. Because it is flooded occasionally, it is not suited to cotton and alfalfa. Row crops can be grown every year if a cover crop is grown occasionally. Crops respond to lime and fertilizer. Yields are moderate to high. Slope and other characteristics are favorable for sprinkler irrigation. The soil material is suitable for use in the reservoir area of farm ponds. (Capability unit IIw–2; woodland suitability group 1; wildlife suitability group 6)

Alluvial land, wet (Avp).—This land type consists of stratified deposits of brownish-gray sand, silt, and clay. It has a higher water table than Alluvial land. Also, it is flooded more frequently and for longer periods. Mottles are more common and nearer the surface.

TABLE 13.—*Interpretations of*

Soil series and map symbols	Susceptibility to frost action	Suitability for winter grading	Suitability as—		Suitability as source of—	
			Road subgrade	Road fill	Topsoil	Sand and gravel [1]
Alluvial land (Alm).	Moderate	Poor; moderately high water table.	Poor; low bearing capacity.	Poor; usually wet.	Poor	Unsuitable
Alluvial land, wet (Avp).	Not susceptible.	Unsuitable; high water table.	Very poor; consistently wet.	Very poor; consistently wet.	Unsuitable	Unsuitable
Altavista (AkB).	Moderate	Good; favorable surface texture and elevation.	Good	Fair	Good; 5- to 9-inch surface layer of sandy loam, except in severely eroded areas.	Unsuitable; quantity not adequate for commercial use.
Appling (AmB, AmB2, AmC2, AnB3, AnC3, AnD3, AoB, AoC).	Moderate	Good; favorable surface texture and elevation.	Good	Fair	Good; 5- to 9-inch surface layer of sandy loam, except in severely eroded areas.	Unsuitable; quantity not adequate for commercial use.
Buncombe (Bfs).	Not susceptible.	Fair; favorable texture; moderately high water table.	Fair to good	Fair	Poor; lacks cohesive quality.	Good; high percentage of sand.
Cecil (CYB, CYB2, CYC2, CYE2, CZB3, CZC3, CZD3, CZE3).	Moderate	Good; favorable surface texture and elevation.	Fair	Fair	Good; 5- to 9-inch surface layer of sandy loam, except in severely eroded areas.	Unsuitable; quantity not adequate for commercial use.
Chewacla (Cfs).	High	Poor; moderately high water table.	Poor; low bearing capacity.	Poor; erodible	Poor	Unsuitable
Colfax (CiB).	Moderate	Poor; moderately high water table.	Poor; low bearing capacity.	Fair	Good; thick surface soil.	Unsuitable; quantity not adequate for commercial use.

See footnote at end of table.

engineering properties of the soils

Soil features affecting—								
Vertical alinement of highways		Sewage disposal	Construction of farm ponds		Agricultural drainage	Sprinkler irrigation	Terraces and diversions	Waterways
Materials	Drainage		Reservoir area	Embankment				
Cuts not likely, because of elevation.	Seasonally high water table.	High water table prohibits use for septic fields.	No difficulty if texture is uniform.	Poor compactibility; uneven gradation.	Seasonally high water table; moderately slow permeability.	Low withdrawal rate.	Not needed.	No adverse features but waterways not generally needed.
Cuts not likely, because of elevation.	Very poor drainage; high water table; frequent overflow.	High water table prohibits use for septic fields.	No difficulty if texture is uniform.	Location and soil texture limit use.	High water table; slow permeability.	Not recommended.	Not needed.	Not needed.
No excavation hazard at depth of less than 10 feet.	No problem.	Moderate permeability in subsoil.	No difficulty.	Very good compactibility.	No problem.	Conditions ideal; water readily accessible.	Slight to moderate erodibility.	No adverse features.
No excavation hazard at depth of less than 10 feet.	No problem.	Moderate permeability in subsoil.	No difficulty.	Very good compactibility.	No problem.	Conditions ideal except on stronger slopes.	Slight to moderate erodibility.	No adverse features.
Cuts not likely, because of elevation.	No problem.	No known difficulty except hazard of overflow in places.	Rapid seepage.	Poor compactibility.	Excessive subsurface drainage.	Not recommended; low water-holding capacity.	Not needed.	High erodibility under heavy flow.
No excavation hazard at depth of less than 10 feet.	No problem.	Moderate permeability in subsoil.	No difficulty.	Very good compactibility.	No problem.	Conditions ideal except on stronger slopes.	Slight to moderate erodibility.	No problem on smooth slopes; high erodibility on steep slopes.
Cuts not likely, because of elevation.	Seasonally high water table; frequent overflow.	Overflow and high water table prohibit use for septic fields.	No difficulty if texture is uniform.	Poor compactibility; uneven gradation.	Seasonally high water table; moderately slow permeability.	Moderate withdrawal rate.	Not needed.	No adverse features but waterways not generally needed.
No excavation hazard.	Seasonally high water table; frequent overflow.	Moderately slow permeability in subsoil.	No difficulty if texture is uniform.	Good compactibility.	Seasonally high water table; moderately slow permeability.	Low withdrawal rate.	Somewhat poor drainage.	No adverse features but waterways not generally needed.

674-438—63——4

TABLE 13.—*Interpretations of*

Soil series and map symbols	Susceptibility to frost action	Suitability for winter grading	Suitability as—		Suitability as source of—	
			Road subgrade	Road fill	Topsoil	Sand and gravel [1]
Congaree (local alluvium). (Cga).	Moderate	Good; favorable surface texture and elevation.	Good	Fair	Good; 12- to 18-inch surface layer of sandy loam.	Unsuitable; quantity not adequate for commercial use.
Congaree (Cos).	Moderate	Poor; moderately high water table.	Poor; low bearing capacity.	Fair	Poor	Unsuitable
Durham (DoA, DoB).	Slight	Good; favorable surface texture and elevation.	Fair	Fair; lacks cohesive quality.	Good; thick surface soil.	Good for sand; quantity adequate and quality good for road surfacing.
Grover (GhB2, GhC2).	Moderate	Good; favorable surface texture and elevation.	Fair	Fair	Good; 5- to 9-inch surface layer of sandy loam, except in severely eroded areas.	Unsuitable
Lloyd (LeB3, LeC3, LeE3, LyB2, LyC2).	Moderate	Poor; sticky	Fair when at proper moisture content.	Fair	Fair	Unsuitable
Local alluvial land, wet. (Lcn).	Not susceptible.	Unsuitable; high water table.	Very poor; consistently wet.	Very poor; very poor compactibility.	Unsuitable	Unsuitable; quality not suitable for commercial use.
Louisa (LjD, LjE).	Moderate	Good; favorable surface texture.	Fair	Fair to poor	Good to poor; surface layer good; substratum poor.	Unsuitable; quantity not adequate for commercial use.
Louisburg (LnD2, LnE2).	Moderate	Fair to good	Fair; fairly stable foundation under loam.	Fair to poor	Good; 5- to 9-inch surface layer of sandy loam, except in severely eroded areas.	Good for sand; quantity adequate and quality good for road surfacing.

See footnote at end of table.

engineering properties of the soils—Continued

Soil features affecting—								
Vertical alinement of highways		Sewage disposal	Construction of farm ponds		Agricultural drainage	Sprinkler irrigation	Terraces and diversions	Waterways
Materials	Drainage		Reservoir area	Embankment				
No excavation hazard at depth of less than 10 feet.	No problem.	Moderate permeability in subsoil.	No difficulty if texture is uniform.	Very good compactibility.	No problem.	Conditions ideal.	None needed; cover needed in waterways.	Ideal location and soil characteristics.
Cuts not likely, because of elevation.	Seasonally high water table; frequent overflow.	Overflow and high water table prohibit use for septic fields.	No difficulty if texture is uniform.	Poor compactibility; uneven gradation.	Seasonally high water table; moderately slow permeability.	Moderate withdrawal rate.	Not needed.	No adverse features but waterways not generally needed.
Bedrock ordinarily within 5 feet of surface.	No problem.	Moderate permeability in subsoil.	Moderately rapid absorption.	Moderately good compactibility; slight seepage.	Surface layer rapidly permeable.	Not recommended; low water-holding capacity.	Erodibility at terrace grades.	High erodibility under heavy flow.
No excavation hazard at depth of less than 10 feet.	No problem.	Moderate permeability in subsoil.	No difficulty.	Very good compactibility.	No problem	Conditions good.	Moderate erodibility.	No adverse features.
Depth to bedrock less than 10 feet.	No problem.	Moderate permeability in subsoil.	No difficulty.	Good compactibility.	No problem.	Low intake rate.	Moderate erodibility.	Susceptibility to gullying.
Cuts not likely, because of elevation.	Very poor drainage; high water table; frequent overflow	High water table prohibits use for septic fields.	No difficulty if texture is uniform.	Location and soil characteristics unfavorable for construction.	High water table; very slow permeability.	Not recommended.	Not needed.	Excessive wetness in spots.
Bedrock ordinarily within 5 feet of surface.	No problem.	Bedrock may limit excavation.	Possibility of seepage through fissures in bedrock.	Moderately good compactibility; slight seepage.	Excessive subsurface drainage.	Not recommended; low water-holding capacity.	Not needed; strong slopes.	High erodibility under heavy flow.
Boulders and bedrock near the surface hinder excavation.	No problem.	Bedrock may limit excavation.	Possibility of seepage through fissures in bedrock.	Moderately good compactibility; slight seepage.	Excessive subsurface drainage.	Not recommended; low water-holding capacity.	Not needed; strong slopes.	High erodibility under heavy flow.

TABLE 13.—*Interpretations of*

Soil series and map symbols	Susceptibility to frost action	Suitability for winter grading	Suitability as—		Suitability as source of—	
			Road subgrade	Road fill	Topsoil	Sand and gravel [1]
Madison (MgB, MgB2, MgC2, MgD2, MgE2, MIB3, MIC3, MID3, MIE3).	Moderate to high.	Good; favorable surface texture and elevation.	Fair to good	Fair to good	Good; 5- to 9-inch surface layer of sandy loam, except in severely eroded areas.	Unsuitable; quantity not adequate for commercial use.
Madison (gravelly phase). (MDB2, MDC2, MDD2, MDE2).	Low to moderate.	Good; favorable surface texture and elevation.	Good; 20 percent gravel.	Good	Moderate; 5- to 9-inch surface layer of gravelly sandy loam.	Good for gravel; quantity adequate for commercial use.
Wehadkee (Wed).	Moderate	Unsuitable; high water table.	Very poor; consistently wet.	Very poor; very poor compactibility.	Unsuitable	Unsuitable
Wickham (WgB2, WhC3).	Moderate to high.	Good; favorable surface texture and elevation.	Good	Fair	Moderate; 5- to 9-inch surface layer of fine sandy loam.	Unsuitable; quantity not adequate for commercial use.

[1] There are a few scattered sand drifts along some of the streams. Sand and gravel are in some of the stream beads.

TABLE 14.—*Engineering test data* [1] *for*

Location of profile	Parent material	Georgia report No.	Depth	Horizon	Moisture-density [2]	
					Maximum dry density	Optimum moisture
			In.		*Lb. per cu. ft.*	*Pct.*
5 miles SW. of Hartwell (ortho)	Granite and gneiss	S59Ga-73-1-1	0 to 5	A_p	121	12
		S59Ga-73-1-4	24 to 41	B_3	98	23
		S59Ga-73-1-5	41 to 65	C	101	21
3 miles E. of Lavonia (coarse textured, shallow)	Granite, gneiss, and schist	S59Ga-73-2-1	0 to 5	A_p	102	21
		S59Ga-73-2-2	5 to 19	B_2	96	25
		S59Ga-73-2-4	27 to 55	C	99	23
½ mile S. of Nancy Hart School (fine textured, deep).	Granite, gneiss, and schist	S59Ga-73-3-1	0 to 4	A_p	111	16
		S59Ga-73-3-3	19 to 55	B_3	103	22
		S59Ga-73-3-4	55 to 77	C	102	18

[1] Tests performed by the Georgia State Highway Department under a cooperative agreement with the U.S. Department of Commerce, Bureau of Public Roads, in accordance with standard test procedures of the American Association of State Highway Officials (AASHO) (*2*).

[2] Based on AASHO Designation: T 99–57, Method A: The moisture-density relations of soils using 5.5-lb. rammer and 12-in. drop (*2*).

[3] According to AASHO Designation: T 88 (*2*). Results obtained by this procedure may differ somewhat from results that would have been obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine mate-

engineering properties of the soils—Continued

Soil features affecting—								
Vertical alinement of highways		Sewage disposal	Construction of farm ponds		Agricultural drainage	Sprinkler irrigation	Terraces and diversions	Waterways
Materials	Drainage		Reservoir area	Embankment				
No excavation hazard at depth of less than 10 feet.	No problem..	Moderate permeability in subsoil.	No difficulty.	Very good compactibility.	No problem..	Conditions ideal except on stronger slopes.	Slight to moderate erodibility.	Ideal conditions except on strong slopes.
Gravel impedes excavation.	No problem..	Moderate permeability in subsoil.	No difficulty.	Very good compactibility.	No problem..	Conditions ideal except on stronger slopes.	Slight to moderate erodibility.	Ideal conditions except on strong slopes.
Cuts not likely, because of elevation.	Very poor drainage; high water table; frequent overflow.	Overflow and high water table prohibit use for septic fields.	No difficulty if texture is uniform.	Location and soil characteristics unfavorable for construction.	High water table; very slow permeability.	Not recommended.	Not needed..	Not needed.
No excavation hazard at depth of less than 10 feet.	No problem..	Moderate permeability in subsoil.	No difficulty.	Very good compactibility.	No problem..	Conditions ideal; water readily accessible.	Slight to moderate erodibility.	No adverse features.

3 profiles of Appling sandy clay loam

Mechanical analysis [3]											Liquid limit	Plasticity index	Classification	
Volume change [4]			Percentage passing sieve—					Percentage smaller than—						
Shrinkage	Swell	Total	No. 4 (4.76 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 60 (0.25 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.			AASHO [5]	Unified [6]
Pct.	*Pct.*	*Pct.*													
2.8	3.4	6.2	98	95	65	51	29	24	22	15	13	22	1	A-2-4(0)...	SM.
7.1	3.7	10.8	100	98	77	68	58	54	51	43	38	53	22	A-7-5(11)..	MH.
7.6	2.6	10.2	100	98	74	63	48	43	40	35	32	44	17	A-7-6(5)...	SM-SC.
6.9	2.0	8.9	95	91	78	70	54	50	47	39	34	42	18	A-7-6(7)...	ML-CL.
7.5	0.8	8.3	99	97	88	80	66	60	56	49	45	50	20	A-7-5(12)..	ML-CL.
8.7	6.0	14.7	100	98	82	74	58	58	50	36	31	55	0	A-5(6).....	MH.
4.7	1.6	6.3	97	93	79	74	44	39	34	27	23	28	12	A-6(2).....	SC.
7.7	3.1	10.8	99	97	86	77	59	53	48	42	36	43	14	A-7-6(7)...	ML.
5.2	7.3	12.5	100	95	76	66	39	42	32	22	17	45	0	A-5(1).....	SM.

rial is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that more than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material more than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analysis data used in this table are not suitable for use in naming textural classes for soils.

[4] Based on A System of Soil Classification by W. F. Abercrombie (*1*).

[5] Based on Standard Specifications for Highway Materials and Methods of Sampling and Testing (*2*).

[6] Based on the Unified Soil Classification System (*8*).

TABLE 15.—*Approximate acreage and proportionate extent of the soils mapped*

Soil	Acres	Percent
Alluvial land	1, 887	1. 3
Alluvial land, wet	618	. 4
Altavista fine sandy loam, 2 to 6 percent slopes	170	. 1
Appling sandy loam, 2 to 6 percent slopes, eroded	5, 787	3. 9
Appling sandy loam, 2 to 6 percent slopes	887	. 6
Appling sandy loam, 6 to 10 percent slopes, eroded	3, 684	2. 5
Appling sandy clay loam, 2 to 6 percent slopes, severely eroded	267	. 2
Appling sandy clay loam, 6 to 10 percent slopes, severely eroded	681	. 5
Appling sandy clay loam, 10 to 15 percent slopes, severely eroded	677	. 5
Appling loamy coarse sand, thin solum, 2 to 6 percent slopes	768	. 5
Appling loamy coarse sand, thin solum, 6 to 10 percent slopes	191	. 1
Buncombe loamy sand	114	. 1
Cecil sandy loam, 2 to 6 percent slopes	1, 144	. 8
Cecil sandy loam, 2 to 6 percent slopes, eroded	11, 608	7. 9
Cecil sandy loam, 6 to 10 percent slopes, eroded	9, 735	6. 6
Cecil sandy loam, 10 to 25 percent slopes, eroded	5, 800	3. 9
Cecil sandy clay loam, 2 to 6 percent slopes, severely eroded	1, 510	1. 0
Cecil sandy clay loam, 6 to 10 percent slopes, severely eroded	5, 251	3. 6
Cecil sandy clay loam, 10 to 15 percent slopes, severely eroded	7, 223	4. 9
Cecil sandy clay loam, 15 to 25 percent slopes, severely eroded	3, 217	2. 2
Chewacla soils	2, 302	1. 6
Colfax sandy loam, 2 to 6 percent slopes	593	. 4
Congaree sandy loam, local alluvium	461	. 3
Congaree soils	1, 835	1. 2
Durham loamy coarse sand, thin solum, 0 to 2 percent slopes	587	. 4
Durham loamy coarse sand, thin solum, 2 to 6 percent slopes	834	. 6
Grover sandy loam, 2 to 6 percent slopes, eroded	1, 595	1. 1
Grover sandy loam, 6 to 10 percent slopes, eroded	894	. 6
Gullied land	58	(1)
Lloyd soils, 2 to 6 percent slopes, eroded	643	. 4
Lloyd soils, 6 to 10 percent slopes, eroded	456	. 3
Lloyd clay loam, 2 to 6 percent slopes, severely eroded	360	. 2
Lloyd clay loam, 6 to 10 percent slopes, severely eroded	412	. 3
Lloyd clay loam, 10 to 25 percent slopes, severely eroded	469	0. 3
Local alluvial land, wet	164	. 1
Louisa fine sandy loam, 6 to 15 percent slopes	780	. 5
Louisa fine sandy loam, 15 to 25 percent slopes	1, 131	. 8
Louisburg sandy loam, 6 to 15 percent slopes, eroded	709	. 5
Louisburg sandy loam, 15 to 25 percent slopes, eroded	376	. 3
Madison sandy loam, 2 to 6 percent slopes, eroded	20, 930	14. 2
Madison sandy loam, 2 to 6 percent slopes	1, 220	. 8
Madison sandy loam, 6 to 10 percent slopes, eroded	20, 226	13. 7
Madison sandy loam, 10 to 15 percent slopes, eroded	3, 302	2. 2
Madison sandy loam, 15 to 25 percent slopes, eroded	973	. 7
Madison gravelly sandy loam, thin solum, 2 to 6 percent slopes, eroded	258	. 2
Madison gravelly sandy loam, thin solum, 6 to 10 percent slopes, eroded	959	. 7
Madison gravelly sandy loam, thin solum, 10 to 15 percent slopes, eroded	609	. 4
Madison gravelly sandy loam, thin solum, 15 to 25 percent slopes, eroded	1, 060	. 7
Madison sandy clay loam, 2 to 6 percent slopes, severely eroded	1, 239	. 8
Madison sandy clay loam, 6 to 10 percent slopes, severely eroded	8, 364	5. 7
Madison sandy clay loam, 10 to 15 percent slopes, severely eroded	9, 834	6. 7
Madison sandy clay loam, 15 to 25 percent slopes, severely eroded	1, 535	1. 0
Mine pits and dumps	175	. 1
Rock land	87	. 1
Wehadkee soils	301	. 2
Wickham fine sandy loam, 2 to 6 percent slopes, eroded	337	. 2
Wickham clay loam, 6 to 10 percent slopes, severely eroded	193	. 1
Total acreage of soils mapped in county	147, 480	100. 0
Hartwell reservoir acreage	17, 000	
Total acreage in county	164, 480	

[1] Less than 0.1 percent.

Natural fertility is fairly high and the organic-matter content is low to moderate. Surface runoff is slow, the rate of infiltration and permeability are moderate to rapid, and the available moisture capacity is high. Drainage is somewhat poor to very poor.

Alluvial land, wet, is widely distributed along small streams. It is suited to pasture and to a limited number of locally grown crops. Row crops can be grown every year if a cover crop is grown occasionally. Ditching is required to remove excess surface water and to improve internal drainage. Slope and other characteristics are favorable for sprinkler irrigation. The soil material is suitable for use in the reservoir area of farm ponds. (Capability unit IIIw–2; woodland suitability group 9; wildlife suitability group 8)

Altavista Series

The Altavista series consists of moderately well drained, strongly acid soils on low stream terraces. The parent material was old alluvium washed from Cecil, Appling, Madison, and related soils. The natural vegetation consists of oak, hickory, maple, gum, and pine. The slope range is 2 to 6 percent. The depth to bedrock is 8 to 15 feet.

The surface layer is dark grayish-brown fine sandy loam, and the subsoil is yellowish-brown sandy clay loam. There is some rounded quartz gravel, mostly less than 1 inch in diameter.

Altavista soils occur as small areas throughout Hart County. They are associated with Wickham soils but are

at lower elevations. They are less well drained than Wickham soils and lack their reddish color.

Altavista soils are well suited to cultivated crops, pasture, and hay.

Altavista fine sandy loam, 2 to 6 percent slopes (AkB).—This is a moderately well drained soil on low stream terraces.

Profile:

0 to 15 inches, dark grayish-brown to brown fine sandy loam; granular structure.
15 to 32 inches, yellowish-brown to light olive-brown sandy clay loam; few, faint, dark grayish-brown mottles; blocky structure.
32 to 44 inches +, mottled, light olive-brown, brownish-yellow, and light brownish-gray sandy clay loam; friable.

In some places, the material below a depth of 32 inches is brittle and resembles a fragipan. Small areas of sandy loam are included, and also a small acreage in which the profile is grayish brown throughout. Some small areas are so severely eroded that the yellowish-brown to olive-brown sandy clay loam is exposed. About 5 to 10 inches of over-washed material has been deposited on some areas.

This soil is low in natural fertility. It contains little organic matter. The rate of infiltration is medium, permeability is moderate, and the available moisture capacity is moderately high. The root zone is thick. Runoff is medium, but the erosion hazard is only slight. This soil is easy to work and to keep in good tilth, except where it is severely eroded.

All of this soil has been cultivated, and most of it is now used for crops and pasture. It is suited to moderately intensive use and responds to good management. It is well suited to sprinkler irrigation. The less severely eroded areas are especially well suited to truck crops. If a row crop is grown every year, all crop residues should be utilized and winter cover crops should be grown often to supply organic matter. (Capability unit IIe–2; woodland suitability group 3; wildlife suitability group 1)

Appling Series

The Appling series consists of well-drained, strongly acid soils. The slope range is 2 to 15 percent. The parent material was derived mainly from granite and gneiss, and to some extent from mica schist. Where the parent material was derived from coarse-grained mica schist, the depth to bedrock is 4 to 15 feet. The natural vegetation consists of oak, hickory, gum, pine, and an undergrowth of brush.

The surface layer is dark grayish-brown sandy loam and loamy coarse sand. The subsoil is yellowish-red to strong-brown sandy clay loam.

Appling soils are associated with Cecil, Durham, Grover, and Madison soils. The surface layer of Appling soils is similar to that of Durham soils, but the subsoil is yellowish red and that of Durham soils is olive brown and is slightly mottled at a depth of about 28 inches. The subsoil of Appling soils is less red and less friable than that of either Cecil or Madison soils. Grover soils are much like Appling soils, but they contain more flakes of mica schist.

Appling soils occur in small scattered areas throughout Hart County but are most extensive in the southwestern part. Most of the acreage has been cleared. These soils respond to fertilizer, lime, and other amendments, but they are slow to warm up in spring and are unsuitable for early planting.

Appling sandy loam, 2 to 6 percent slopes, eroded (AmB2).—This is a well-drained soil on uplands. It has a slightly sticky, yellowish-red clayey subsoil.

Profile:

0 to 7 inches, dark grayish-brown sandy loam; friable.
7 to 31 inches, yellowish-red to strong-brown sandy clay loam; firm; blocky structure.
31 to 44 inches, red clay; yellowish-red mottles; firm; coarse, blocky structure.
44 to 48 inches +, partly disintegrated bedrock of red clay loam; reddish-yellow and brownish-yellow mottles.

The surface layer ranges from gray to dark grayish brown in color. Some areas are included that have a surface layer of fine sandy loam to loamy coarse sand. In other places some severely eroded areas are included, and here the surface layer is yellowish-red sandy clay loam. The color of the subsoil ranges from yellowish red to strong brown streaked with gray. Included are small areas of Cecil, Grover, and Durham soils.

This soil is low in natural fertility and contains little organic matter. The rate of infiltration is medium, permeability is moderately slow, and the available moisture capacity is moderate. Surface runoff is moderate.

If well managed, this soil can be used regularly for row crops without appreciable loss of soil. Close-growing crops should be grown half the time, all crop residues should be retained, and row crops should be followed by winter cover crops. (Capability unit IIe–2; woodland suitability group 2; wildlife suitability group 1)

Appling sandy loam, 2 to 6 percent slopes (AmB).—The surface layer of this soil is from 2 to 4 inches thicker than that of Appling sandy loam, 2 to 6 percent slopes, eroded. Most areas are wooded. In the wooded areas, the organic-matter content is moderate. The available moisture capacity is moderately high.

Because it has a thicker surface layer than the eroded phase, this soil can be used more intensively. It is suited to most locally grown crops but needs protection from runoff and erosion. Most of the acreage is wooded. (Capability unit IIe–2; woodland suitability group 2; wildlife suitability group 1)

Appling sandy loam, 6 to 10 percent slopes, eroded (AmC2).—In comparison with Appling sandy loam, 2 to 6 percent slopes, eroded, this soil has slightly more rapid runoff, a slower rate of infiltration, and more spots that are severely eroded.

This soil is mostly cultivated. It is moderately well suited to most locally grown crops. Some areas are in pasture or woodland. Erosion is a moderate hazard in cultivated areas; consequently, row crops should be grown less frequently than on the less sloping Appling soils. Crop residues should be retained, and winter cover crops should be grown after row crops. (Capability unit IIIe–2; woodland suitability group 2; wildlife suitability group 1)

Appling sandy clay loam, 2 to 6 percent slopes, severely eroded (AnB3).—This soil consists of borrow areas, from which the top layers of soil have been removed for fill material, and of areas that have been severely

eroded. The depth to the partly disintegrated bedrock is about 33 inches. The plow layer consists almost entirely of strong-brown to yellowish-red sandy clay loam that bakes and clods upon drying. The erosion hazard is severe. Surface runoff is more rapid and infiltration is slower than for the less eroded Appling soils. Included are a few less severely eroded areas that have a 3- to 5-inch surface layer of sandy loam.

All of this soil has been cultivated, but most of it is now idle. Some areas have been planted to sericea lespedeza. The borrow areas are unsuitable for row crops. Other areas are suited to rotations in which row crops are grown no more often than once in 3 years. (Capability unit IIIe–2; woodland suitability group 4; wildlife suitability group 3)

Appling sandy clay loam, 6 to 10 percent slopes, severely eroded (AnC3).—The plow layer of this soil is composed almost entirely of yellowish-red sandy clay loam that tends to bake and clod when cultivated. Surface runoff is rapid, and the rate of infiltration is slow. The organic-matter content is very low.

This soil has been cultivated, but a large part of it has reverted to pasture or to pine forest. It is suited to only occasional cultivation. Row crops should be followed by winter cover crops, and all crop residues should be retained. (Capability unit IVe–1; woodland suitability group 4; wildlife suitability group 3)

Appling sandy clay loam, 10 to 15 percent slopes, severely eroded (AnD3).—This soil has a very thin surface layer of yellowish-red sandy clay loam that tends to bake and clod. Runoff is rapid, the rate of infiltration is very slow, and the available moisture capacity is very low. The erosion hazard is very severe. A few U-shaped gullies, 5 to 8 feet deep, have formed.

This is an inextensive soil that occurs usually in small areas. It has all been cultivated at some time, but most of it is now in volunteer pines and scattered hardwoods. It is not suited to cultivated crops. It is best suited to trees or to other permanent vegetation. (Capability unit VIe–2; woodland suitability group 4; wildlife suitability group 4)

Appling loamy coarse sand, thin solum, 2 to 6 percent slopes (AoB).—This well-drained soil on uplands has a thinner solum and a coarser textured surface layer than Appling sandy loam, 2 to 6 percent slopes, eroded.

Profile:

0 to 9 inches, dark grayish-brown loamy coarse sand; loose.
9 to 27 inches, strong-brown sandy clay loam; red and yellowish-brown mottles; blocky structure.
27 to 36 inches +, partly disintegrated rock; coarse grained; red with yellowish-brown mottles.

In places the surface layer is sandy loam. It ranges in color from light brown to dark grayish brown. The depth to disintegrated rock is 18 to 30 inches.

This soil is very low in natural fertility and contains very little organic matter. Surface runoff is moderate, the infiltration rate is rapid, and the available moisture capacity is low. Plant nutrients leach out readily.

Most of this soil has been cleared and is now in cultivation. If well managed, it is fairly well suited to most locally grown crops. All crop residues should be retained, and row crops should be followed by winter cover crops. (Capability unit IIe–2; woodland suitability group 5; wildlife suitability group 1)

Appling loamy coarse sand, thin solum, 6 to 10 percent slopes (AoC).—In comparison with Appling loamy coarse sand, thin solum, 2 to 6 percent slopes, this soil has more rapid surface runoff, has a slower rate of infiltration, and is more likely to erode.

This soil is now in cultivation. It is moderately well suited to most locally grown crops. It is best suited to deep-rooted legumes and grasses. All crop residues should be retained, and winter cover crops should be grown after row crops. (Capability unit IIIe–2; woodland suitability group 5; wildlife suitability group 1)

Buncombe Series

The Buncombe series consists of yellowish-brown, excessively drained, strongly acid, very friable or loose sandy soils on first bottoms. The parent material was alluvium recently washed from soils underlain by granite, gneiss, and mica schist. The slope range is 0 to 6 percent. The natural vegetation consists of oak, birch, elm, hickory, ash, poplar, sycamore, and alder.

Buncombe soils are associated with Congaree soils, which are moderately well drained; with Chewacla soils, which are somewhat poorly drained; and with Wehadkee soils, which are poorly drained.

Buncombe soils occupy only a very small acreage in Hart County. They occur mainly along the Savannah River, below the Hartwell Dam. Most of the acreage is in woodland consisting of hardwoods and scattered pines. A little is idle. The only suitable crops are deep-rooted ones that can withstand drought.

Buncombe loamy sand (Bfs).—This excessively drained soil is on first bottoms. The slope range is 0 to 6 percent.

Profile:

0 to 6 inches, dark yellowish-brown loamy sand; loose or very friable; structureless.
6 to 14 inches, light yellowish-brown to reddish-brown loamy fine sand; very friable; structureless.
14 to 47 inches +, strong-brown to brownish-yellow loamy sand; very friable.

In some places the surface layer is light-gray, loose sand. In wooded areas, where little new material has been deposited recently, the topmost 3 or 4 inches is stained dark with organic matter. The thickness of the profile layers varies considerably. Included are small areas of a soil that resembles the Congaree soils. Also included are areas that have a surface layer of sandy loam and silt loam.

This soil is very low in fertility. It is easy to work but is low in productivity. Runoff is slow to very slow. There is no erosion hazard, but new alluvium is deposited from time to time. Some scouring by floodwater may occur. Very rapid permeability allows the leaching of plant nutrients, and the low available moisture capacity makes this soil very droughty.

Much of this soil has been cleared at some time. Most of it is presently used as woodland but some is used as pasture, and some is idle. This soil is suited to only a few crops. It can be used for some truck crops, including watermelons, if fertilized adequately and otherwise well managed. It is also suitable for growing and harvesting Coastal bermudagrass stolons. (Capability unit IIIs–1; woodland suitability group 1; no wildlife suitability group)

Cecil Series

The Cecil series consists of well-drained, strongly acid soils on uplands. The slope range is 2 to 25 percent, but slopes of 6 percent are the most common. The parent material was derived from granite, gneiss, and some mica schist. The natural vegetation consists of oak, hickory, poplar, gum, and some maple and pine.

Where uneroded, Cecil soils have a surface layer of dark grayish-brown sandy loam. The subsoil is red sandy clay loam.

Cecil soils are widely distributed throughout Hart County. They are associated with Madison, Grover, Appling, Durham, Lloyd, and Louisburg soils. Cecil soils are less micaceous than Madison and Grover soils. They have a redder subsoil than Appling, Durham, and Grover soils. They are less sticky than Lloyd soils, and their surface layer and subsoil are lighter colored. These soils have a thicker solum and more distinct horizons than the grayish-brown Louisburg soils.

Most of the acreage has been cleared at some time. About three-fourths is now used for crops and pasture. Cotton, corn, small grain, and lespedeza are grown extensively on the less sloping areas. Crops respond to fertilizer, lime, and other amendments.

Cecil sandy loam, 2 to 6 percent slopes (CYB).—This well-drained soil is on uplands. It occurs as small areas on broad ridges.

Profile:

0 to 10 inches, dark grayish-brown to strong-brown sandy loam; granular structure.
10 to 32 inches, yellowish-red, friable sandy clay loam grading to red, firm clay loam; blocky structure.
32 to 48 inches, red sandy clay loam; yellowish-red mottles; friable; blocky structure.
48 to 56 inches +, partly disintegrated, red bedrock of sandy loam texture; strong-brown mottles.

The surface layer ranges from dark grayish-brown to yellowish-red in color. Included are small areas of fine sandy loam. In eroded spots the surface layer is red sandy clay loam. The thickness of the surface layer varies by as much as 3 to 5 inches. The depth to bedrock is about 6 to 15 feet. Included are small areas that are nearly level. Mica flakes occur throughout the profile.

This soil is low in natural fertility and contains little organic matter. Surface runoff and the rate of infiltration are medium. The available moisture capacity is moderate. Permeability is moderately rapid in the surface layer and moderate in the subsoil.

Most of the acreage is in mixed hardwoods and pines. If well managed, this soil is suited to most locally grown crops. (Capability unit IIe–1; woodland suitability group 2; wildlife suitability group 1)

Cecil sandy loam, 2 to 6 percent slopes, eroded (CYB2).—This soil has a slower rate of infiltration and a lower available moisture capacity than Cecil sandy loam, 2 to 6 percent slopes. The 4- to 8-inch surface layer is yellowish-red sandy loam. The subsoil is red sandy clay loam. There are shallow gullies and a few gullies that are 2 to 4 feet deep. There are also a few galled spots in which the red sandy clay loam is exposed.

Most of the acreage is used for cotton, corn, grain sorghum, pimiento peppers, and small grain. Small acreages are in pasture and woodland. This soil is suited to most of the locally grown crops. Row crops can be grown half the time, without excessive soil loss, if rotated with close-growing crops. Crop residues should be retained. (Capability unit IIe–1; woodland suitability group 2; wildlife suitability group 1)

Cecil sandy loam, 6 to 10 percent slopes, eroded (CYC2).—In comparison with Cecil sandy loam, 2 to 6 percent slopes, this soil has more rapid runoff and slower infiltration. The yellowish-red surface layer is 4 to 6 inches thick. It is a mixture of the original surface layer and the original subsoil. Severely eroded spots in which the subsoil is exposed are common in cultivated areas. Included also are a few very slightly eroded areas; the soil in these areas has a moderate organic-matter content.

Most of this soil is cultivated. A little of it is in pasture and a little is in woodland. It is well suited to cotton, corn, grain sorghum, small grain, and lespedeza. Erosion can be controlled by keeping a close-growing crop on the soil 2 years out of 3. (Capability unit IIIe–1; woodland suitability group 2; wildlife suitability group 1)

Cecil sandy loam, 10 to 25 percent slopes, eroded (CYE2).—Compared with Cecil sandy loam, 2 to 6 percent slopes, this soil has more rapid runoff and slower infiltration. It has a thinner and less well developed subsoil. The surface layer is yellowish red and is 4 to 6 inches thick. In cultivated areas there are a few galled spots, some shallow gullies, and scattered U-shaped gullies 2 to 5 feet deep.

This soil is mostly in woodland. It can be used for pasture but is suited to only a few kinds of pasture plants. The erosion hazard is severe. Because of the strong slopes, this soil should be kept in permanent vegetation. (Capability unit VIe–2; woodland suitability group 2; wildlife suitability group 2)

Cecil sandy clay loam, 2 to 6 percent slopes, severely eroded (CZB3).—This soil has lost most of its surface layer and some of its subsoil through erosion. The present surface layer tends to bake and clod if cultivated when too wet. Many small gullies have formed. Some gullies are too deep to be crossed with farm machinery.

The loss of the original surface layer has resulted in an increase in runoff, a decrease in the rate of infiltration, and a reduction in the available water capacity. Fertility is low, and the organic-matter content is low.

This soil is fairly well suited to cultivation. Most of it is used for cultivated crops. The erosion hazard is moderate in cultivated areas. All crop residues and winter cover crops should be utilized. (Capability unit IIIe–1; woodland suitability group 4; wildlife suitability group 3)

Cecil sandy clay loam, 6 to 10 percent slopes, severely eroded (CZC3).—This soil has lost most or all of the original surface layer and some of the subsoil through erosion. Many gullies have formed. Some gullies are too deep to be crossed with farm machinery. In a few areas 4 to 6 inches of the original surface layer is left between the gullies. A few very severely eroded areas are included.

The loss of the surface layer has resulted in an increase in runoff, a decrease in the rate of infiltration, and a reduction in the available moisture capacity. The erosion hazard is very severe.

About half the acreage is cultivated. A small acreage is in woodland, and the rest is in pasture. This soil tends

to bake and clod if cultivated when too wet. Although poorly suited to cultivation, it can be used for a row crop 1 year in every 4 or 5 years. The rest of the time, it should be kept in close-growing crops. All crop residues should be retained, and a winter cover crop should be turned under every 2 or 3 years. (Capability unit IVe–1; woodland suitability group 4; wildlife suitability group 3)

Cecil sandy clay loam, 10 to 15 percent slopes, severely eroded (CZD3).—The plow layer of this soil is composed mostly of clay loam that tends to harden and crack upon drying. Some shallow gullies have formed. Some gullies are too deep to be crossed with farm machinery. There are a few U-shaped gullies 3 to 6 feet deep.

Permeability and the rate of infiltration are very slow. The available moisture capacity is low. Surface runoff is rapid. In cultivated areas, the erosion hazard is severe or very severe. The supply of plant nutrients is low.

All of this soil has been cleared and cultivated at some time, but a part of it has reverted to pines and hardwoods. A small acreage is in pasture, and some is in sericea lespedeza. This soil is not suited to cultivated crops. It is well suited to trees and is fairly well suited to pasture. (Capability unit VIe–2; woodland suitability group 4; wildlife suitability group 4)

Cecil sandy clay loam, 15 to 25 percent slopes, severely eroded (CZE3).—The profile of this soil is thinner and less well developed than that of Cecil sandy loam, 2 to 6 percent slopes. The original surface layer has been lost through erosion. The present surface layer is red sandy clay loam. Shallow gullies have formed. Some gullies are too deep to be crossed with farm machinery. There are a few cavelike gullies. In a few areas 4 to 6 inches of the original surface layer remains between the gullies.

The loss of the surface layer has resulted in an increase in surface runoff, a decrease in the rate of infiltration, and a reduction in the available moisture capacity. The root zone is thin.

Most of the acreage is in volunteer pines. This soil is not suited to cultivated crops. It should be used for forest or kept in other permanent vegetation. (Capability unit VIIe–1; woodland suitability group 4; wildlife suitability group 4)

Chewacla Series

The Chewacla series consists of somewhat poorly drained, very strongly acid soils on first bottoms. The parent material was alluvium recently washed from soils underlain by granite, gneiss, and some basic rocks. The natural vegetation consists of oak, poplar, ash, elm, maple, willow, and alder. The slope range is 0 to 2 percent.

The surface layer is mixed reddish-brown to grayish-brown, medium-textured material. The subsoil is mottled yellowish-red silt loam.

Chewacla soils occupy a small acreage in Hart County. They occur mainly along the Savannah River and the larger branches and creeks. They are associated with the well-drained Congaree and the poorly drained Wehadkee soils. In some areas, they are near or adjacent to Alluvial land (moderately well drained) and Alluvial land, wet.

Chewacla soils are well suited to a wide range of pasture grasses and to corn. They respond to good management, including fertilization and artificial drainage. Flooding reduces yields, especially of cultivated crops.

Chewacla soils (Cfs).—These somewhat poorly drained soils are on first bottoms. The slope range is 0 to 2 percent.

Profile:

0 to 6 inches, reddish-brown silt loam; friable.
6 to 16 inches, yellowish-red silt loam; distinct, pale-brown mottles; sticky.
16 to 25 inches, yellowish-red silt loam; distinct, pale-brown and very dark gray mottles; very sticky.
25 to 36 inches +, brownish-yellow silty clay loam; light brownish-gray and yellowish-brown mottles; blocky structure.

The surface layer varies in color but is mostly reddish brown and grayish brown. It consists of fairly recent deposits of sand, silt, and clay. Stratified lenses of sand about 4 to 8 inches thick occur at various depths throughout the profile. The profile is weakly developed.

These soils are moderately high in natural fertility. They contain a moderate amount of organic matter. The rate of infiltration is medium. Permeability is moderate in the surface layer and moderately slow in the subsoil. The available moisture capacity is very high, and the erosion hazard is only slight.

Most of the acreage is in pasture, a small acreage is in mixed hardwoods, and a very small acreage is in crops. Most locally grown bottomland crops can be grown if they are planted where flooding causes the least damage. Open ditches are needed to remove excess surface water (fig. 7). Crop residues should be retained, and soil-improving crops should be grown often. These soils retain plant nutrients and respond to good management. Fresh deposits left on the surface by floods may form a crust that has to be broken up by cultivation. (Capability unit IIIw–2; woodland suitability group 9; wildlife suitability group 7)

Colfax Series

The Colfax series consists of somewhat poorly drained, very strongly acid soils that occur around the head of draws and in depressions along drainageways. The parent material was derived from light-colored granite, gneiss, and some schist. The slope range is 2 to 6 percent. The natural vegetation consists of gum, poplar, beech, hickory, oak, and willow.

The surface layer is light grayish-brown sandy loam. The subsoil is mottled yellow, gray, and red sandy clay loam.

Colfax soils occupy a very small acreage in Hart County. They are associated with the better drained Appling, Grover, and Durham soils and with the more poorly drained Worsham soils. Worsham soils are not mapped separately in Hart County.

Most of the acreage has been cleared. It is now used for truck crops, pasture, corn, and grain sorghum. These soils are too wet and too cold to be suited to cotton and alfalfa.

Colfax sandy loam, 2 to 6 percent slopes (CiB).—This somewhat poorly drained soil occurs around the head of drainageways.

Figure 7.—**Surface field ditch for draining an area of Chewacla soils.**

Profile:

0 to 10 inches, light grayish-brown to pale-yellow sandy loam.
10 to 28 inches, light yellowish-brown to light-gray sandy clay loam; distinct, brownish-yellow mottles; plastic; blocky structure.
28 to 30 inches +, white and light reddish-brown coarse sand; many mica flakes.

In some included areas, the texture of the surface layer is sandy clay loam to coarse sandy loam. In some places, 6 to 10 inches of sandy material washed from adjoining slopes has been deposited on the surface. Both the intensity of mottling and the degree of plasticity are variable in the lower part of the subsoil.

This soil is low in fertility. It contains little organic matter. Surface runoff is medium, and the available moisture capacity is high. Permeability is slow.

Most of this soil has been cultivated, but some of it is now in woodland or pasture. Water-loving plants are growing in the areas too wet to cultivate. This soil is best suited to pasture grasses and hay crops. It is suited to corn, sorghum, and some truck crops. Open drainage ditches are needed before this soil can be cultivated satisfactorily. Crops respond moderately well to fertilizer. All crop residues should be retained, and a cover crop should be grown after each row crop. (Capability unit IIIw–3; woodland suitability group 6; wildlife suitability group 7)

Congaree Series

The Congaree series consists of reddish-brown to yellowish-red, moderately well drained to well drained, very friable, strongly acid soils. These soils consist of mixed alluvium recently deposited on first bottoms. A small acreage consists of local alluvium recently deposited in depressions and along narrow drainageways of the uplands. The slope range is 0 to 2 percent. The natural vegetation consists of poplar, gum, elm, oak, hickory, beech, maple, and alder.

Congaree soils are associated with Buncombe, Chewacla, and Wehadkee soils. They are better drained than Chewacla and Wehadkee soils. They are not so sandy as Buncombe soils.

These soils occupy a large acreage on first bottoms in Hart County. Most of the acreage is in crops and pasture. A small acreage is used as woodland. Corn, grain sorghum, hay, and pasture are suitable crops. Crops respond to fertilizer. Yields are reduced by flooding.

Congaree sandy loam, local alluvium (Cga).—This well-drained soil consists of local alluvium recently deposited in depressions and along narrow drainageways of the uplands. The slope range is 0 to 2 percent.

Profile:

0 to 8 inches, yellowish-brown sandy loam; very friable; granular structure.
8 to 14 inches, light olive-brown sandy loam; friable; granular structure.
14 to 34 inches, yellowish-brown sandy clay loam; friable; weak, blocky structure.
34 to 52 inches +, mottled, yellowish-brown and red, crumbly residual material.

The color of the surface layer ranges from yellowish brown to dark brown to dark grayish brown. Small areas of fine sandy loam and loam are included.

Fertility is moderately high, and the organic-matter content is moderate. Permeability is moderate, surface runoff is slow, the rate of infiltration is medium, and the available moisture capacity is high.

This soil is suited to intensive use and responds to good management. Most of it is in crops and pasture. In cultivated fields many areas are used as waterways. Areas near homsites are used as gardens. (Capability unit I–1; woodland suitability group 1; wildlife suitability group 6)

Congaree soils (Cos).—These moderately well drained or well drained soils are on first bottoms. The slope range is 0 to 2 percent.

Profile (sandy loam):

0 to 8 inches, reddish-brown sandy loam; friable; small mica flakes.
8 to 33 inches, yellowish-red sandy loam; friable; many small mica flakes; granular structure.
33 to 40 inches +, yellowish-brown sandy clay loam; faint, light-red mottles.

All characteristics are variable. The texture of the surface layer is most commonly sandy loam, but it ranges from silt loam to sandy loam. In some areas the substratum is stratified. Faint mottles occur at a depth of about 18 inches in some small areas. Mica flakes are common.

Fertility is moderately high, and the organic-matter content is moderate. The rate of infiltration is medium, and permeability is moderately rapid. Surface runoff is slow, and internal drainage is medium. There is little erosion except for that caused by floods. Good tilth is easily maintained.

Most of the acreage has been cleared and is now used for cultivated crops, for hay, or for pasture. Crops respond to fertilizer. Floods may cause crop failures every 3 or 4 years. Crop residues and green-manure crops should be utilized to maintain the organic-matter content. (Capability unit IIw–2; woodland suitability group 1; wildlife suitability group 6)

Durham Series

The Durham series consists of well-drained, strongly acid soils. The parent material was derived from light-colored granite and coarse-grained gneiss that contained mica flakes. The slope range is 0 to 6 percent. The natural vegetation consists of oak, hickory, poplar, sweetgum, dogwood, and pine.

The surface layer is olive-gray loamy coarse sand. The subsoil is light olive-brown sandy clay loam mottled with pale olive and yellowish red.

Durham soils are associated with Appling, Grover, and Colfax soils. The surface layer of the Durham soils is similar to that of the Appling and Grover soils. The subsoil is thinner than that of Appling and Grover soils.

Durham soils occur in small scattered areas throughout Hart County but are most extensive in the southwestern part. Most of the acreage has been cleared and is now used for cotton, corn, and small grain. Yields are good. The Durham soils are slow to warm up in spring and are unsuitable for early planting.

Durham loamy coarse sand, thin solum, 0 to 2 percent slopes (DoA).—This well-drained, nearly level soil is on uplands.

Profile:

0 to 14 inches, olive-gray to light yellowish-brown loamy coarse sand; granular structure.
14 to 32 inches, light olive-brown sandy clay loam; distinct, pale-olive and yellowish-red mottles.
32 to 46 inches +, disintegrated material; pale-olive, light olive-brown, and yellowish-red mottles.

In some places the surface layer is sandy loam or fine sandy loam. The solum is 20 to 34 inches thick; it is most commonly about 28 inches thick. The depth to bedrock is 4 to 15 feet.

Fertility is low, and the organic-matter content is very low. The rate of infiltration is medium, permeability is moderate, and the available moisture capacity is moderate.

Most of this soil has been cleared and is now used for crops. Some areas are in the original woodland. Although droughty, this soil can be cultivated regularly if soil-improving crops are grown often to supply organic matter. Cotton, corn, small grain, grain sorghum, and truck crops are suited to this soil. (Capability unit IIs–1; woodland suitability group 5; wildlife suitability group 1)

Durham loamy coarse sand, thin solum, 2 to 6 percent slopes (DoB).—In comparison with Durham loamy coarse sand, thin solum, 0 to 2 percent slopes, this soil has slightly more rapid surface runoff, a slower rate of infiltration, and a greater erosion hazard. Some eroded areas are included.

Some areas are wooded, but most of the acreage is cultivated. This soil is well suited to cotton, corn, grain sorghum, small grain, and truck corps. It responds to good management, although it is subject to leaching of plant nutrients. Rotations should be of moderate length. Growing deep-rooted legumes in the rotation helps to improve permeability and to increase the rate of infiltration and, consequently, to reduce runoff and to retard erosion. (Capability unit IIe–2; woodland suitability group 5; wildlife suitability group 1)

Grover Series

The Grover series consists of well-drained, strongly acid soils on uplands. The slope range is 2 to 10 percent. The parent material was derived from quartz mica schist and micaceous gneiss. The natural vegetation consists principally of oak, gum, dogwood, sourwood, hickory, pine, and brush.

The surface layer is sandy loam. The subsoil is yellowish-red sandy clay loam.

Grover soils are associated with Appling, Madison, Louisa, Cecil, and Durham soils. They have a browner surface layer and a redder subsoil than Madison soils. They contain more flakes of mica schist than Appling soils. Grover soils occur with Louisa soils in steep, broken areas, but they are deeper to bedrock and have more distinct horizons. They are more micaceous and have a less red subsoil than Cecil soils. They are 6 to 10 inches more shallow than Durham soils, and they have an olive-brown subsoil.

Soils of this series occur on broad, very gently sloping ridges in the southwestern part of Hart County. Most of the acreage has been cleared and is now used for pasture and crops. These soils are suited to a limited number of crops. Cotton, corn, small grain, and lespedeza are grown, but yields are low. Crops respond to fertilizer, lime, and other amendments, but the soils are slow to warm up in the spring and are unsuited to early planting.

Grover sandy loam, 2 to 6 percent slopes, eroded (GhB2).—This is a well-drained soil on uplands.

Profile:

0 to 8 inches, brown sandy loam; granular structure; numerous mica flakes.
8 to 13 inches, reddish-yellow sandy clay loam; friable; numerous mica flakes.
13 to 37 inches, yellowish-red sandy clay loam; firm to friable; reddish-yellow mottles in upper part of layer; numerous mica flakes.
37 to 67 inches +, reddish-yellow and white decomposed rock; numerous small mica flakes.

The surface layer ranges from brown to grayish brown in color. Areas of fine sandy loam and coarse sandy loam are included. The depth to bedrock is 5 to 15 feet. Mica flakes, which are common throughout the profile in most places, give the soil material a slick, greasy feel. Included are small areas, mostly wooded, that are nearly level.

Fertility is low, and the organic-matter content is low. Surface runoff and the rate of infiltration are medium. The available moisture capacity is moderate. Erosion can be controlled fairly easily.

Most of this soil has been cleared and is now used for cultivated crops, for pasture, and for hay. Small areas are in woodland. Row crops can be grown 2 years out of 4 if close-growing crops are grown the other 2 years. Crop residues should be retained to supply organic matter. (Capability unit IIe–2; woodland suitability group 2; wildlife suitability group 1)

Grover sandy loam, 6 to 10 percent slopes, eroded (GhC2).—In cultivated fields of this soil, there is a moderate erosion hazard. Included are many severely eroded patches in which the subsoil is exposed. The rate of infiltration is slower and the available moisture capacity is lower in these severely eroded spots than in the rest of the unit.

Most of this soil has been cleared and is now in cultivation. It is suited to cultivated crops if close-growing crops are grown 2 years out of 3. It is well suited to pasture and hay crops. (Capability unit IIIe–2; woodland suitability group 2; wildlife suitability group 1)

Gullied Land

Gullied land (Gul).—This land type consists of small areas of land from which most of the soil has been removed. In more than half of the acreage, there is an intricate pattern of deep and shallow gullies. In many places the gullies have cut into the weathered mica schist or into the granite, hornblende, gneiss, or diorite. The soil remaining between the gullies is mostly sandy clay loam. The slope range is 6 to 15 percent.

The supply of organic matter and the supply of available plant nutrients are very low. Plant growth is extremely slow. Surface runoff is very rapid, permeability is slow, and the available moisture capacity is low.

This land type is not suitable for agriculture. It can be managed, however, so that it will afford protection for the watershed or will produce a small amount of food and cover for wildlife (fig. 8). Establishing vegetation on this land requires intensive care and skill. (Capability unit VIIe–3; not suitable for commercial woodland; wildlife suitability group 4)

Lloyd Series

The Lloyd series consists of well-drained, strongly acid soils on uplands. The slope range is 2 to 25 percent, but slopes of 2 to 10 percent are the most common. The parent material was derived from basic rock, granite, gneiss, and mica schist. The natural vegetation consists of oak, hickory, poplar, sourwood, dogwood, sassafras, pine, and redcedar.

In areas that are not severely eroded, the surface layer is dark-brown sandy loam. The subsoil is red to dark-red clay loam.

Lloyd soils occupy a very small acreage in Hart County. They occur mostly in the northwestern part of the county and are associated with Cecil and Madison soils. They have a browner surface layer and a darker red subsoil than Cecil soils. They have a browner surface layer and a finer textured subsoil than Madison soils and are less micaceous and more sticky.

Most of the acreage has been cleared and is now used for crops and pasture. These soils are suited to small grain and lespedeza.

Lloyd soils, 2 to 6 percent slopes, eroded (LyB2).—These are well-drained soils on uplands.

Profile:

0 to 7 inches, dark-brown sandy loam.
7 to 12 inches, red sandy clay loam; blocky structure.
12 to 44 inches, dark-red clay loam; sticky when wet; blocky structure.
44 to 48 inches +, red clay loam; strong-brown mottles.

The surface layer ranges from dark brown to reddish brown in color and from sandy loam to clay loam in texture. The texture of the subsoil ranges from sandy clay loam to clay loam. Bedrock is at a depth of 6 to more than 25 feet. There are a few galled spots. Shallow gullies have formed. A few U-shaped gullies are 2 to 4 feet deep. Included are small areas that have a surface layer of reddish-brown loam and clay loam containing less sandy material than the corresponding layer in most of the Lloyd soils.

These soils are moderate in natural fertility. In wooded areas, the organic-matter content is moderate, but in the severely eroded areas, it is low. Runoff and internal drainage are medium, and the available moisture capacity is moderate. Permeability is moderately rapid to moder-

Figure 8.—An area of Gullied land where kudzu has been established to control erosion.

ate in the surface layer and moderate in the subsoil. The erosion hazard is slight to moderate.

These soils are used for small grain, hay, corn, and cotton. A small acreage is in pasture. Crops respond to good management. Yields are medium to high. Close-growing crops should be grown once in 2 or 3 years. All crop residues should be retained. (Capability unit IIe–1; woodland suitability group 2; wildlife suitability group 1).

Lloyd soils, 6 to 10 percent slopes, eroded (LyC2).—These soils have stronger and shorter slopes than Lloyd soils, 2 to 6 percent slopes, eroded. Surface runoff is more rapid, the rate of infiltration is slower, and the erosion hazard is greater. There are some severely eroded spots in which the subsoil is exposed. Tilth is poor in these severely eroded areas.

These soils are suited to cultivated crops and to pasture. A close-growing crop is needed 2 years out of 3 or 4, to help control erosion and to maintain good tilth. All crop residues should be utilized, and winter cover crops should be turned under. (Capability unit IIIe–1; woodland suitability group 2; wildlife suitability group 1)

Lloyd clay loam, 2 to 6 percent slopes, severely eroded (LeB3).—This soil occurs as small areas on ridgetops. It has a thinner solum than Lloyd soils, 2 to 6 percent slopes, eroded. The surface layer is red clay loam that tends to bake and clod if cultivated when wet. Shallow gullies are common. Fertility is low, and the organic-matter content is low. The rate of infiltration is slow, and internal drainage is medium. The available moisture capacity is moderate to moderately low.

Most of the acreage is cultivated or in pasture. Row crops should be grown only occasionally. Two-thirds of the acreage should be in close-growing crops, as a protection against erosion. All crop residues should be retained. (Capability unit IIIe–1; woodland suitability group 4; wildlife suitability group 3)

Lloyd clay loam, 6 to 10 percent slopes, severely eroded (LeC3).—This soil is on fairly smooth interstream ridges and on gradual slopes leading toward drainageways. The profile is thinner than that of Lloyd soils, 2 to 6 percent slopes, eroded. The original sandy loam surface layer has been removed by erosion. The present red to reddish-brown plow layer is a mixture of the remnants of the original surface layer and material from the subsoil. It tends to bake and clod if cultivated when wet. Shallow gullies are common.

Fertility is moderate, and the organic-matter content is low. Runoff is medium or rapid, the rate of infiltration is slow, permeability is moderate, and internal drainage is

medium. The available moisture capacity is moderate or moderately low. Erosion is a very severe hazard.

Most of the acreage is in pasture and woodland. This soil has all been cultivated at some time, though it is only moderately well suited to cultivated crops. Row crops should be grown only 1 year in 4, and close-growing crops should be grown the rest of the time. All crop residues should be retained, and winter cover crops should be grown and turned under. (Capability unit IVe–1; woodland suitability group 4; wildlife suitability group 3)

Lloyd clay loam, 10 to 25 percent slopes, severely eroded (LeE3).—This soil is on steep slopes near or along drainageways. It has a thinner solum than Lloyd soils, 2 to 6 percent slopes, eroded. The 2- to 4-inch surface layer consists of fine-textured, red to reddish-brown material from the original subsoil. Shallow gullies are common. Included are a few slightly eroded areas that have a dark-brown surface layer.

Fertility is moderately low, and the organic-matter content is low. Runoff is rapid, and the rate of infiltration is slow. Internal drainage is medium, permeability is moderate, and the available moisture capacity is moderate or moderately low. The erosion hazard is severe.

Most of the acreage is wooded. A small acreage is in pasture. This soil is not suited to cultivated crops. It is best suited to pasture, hay crops, and trees. (Capability unit VIe–2; woodland suitability group 4; wildlife suitability group 4)

Local Alluvial Land

Local alluvial land, wet (Lcn).—This land type is very poorly drained and strongly acid. It occurs on colluvial fans at the base of slopes and also in depressions and low areas at the head of intermittent drainageways. It consists of a mixture of colluvium, local alluvium, and residuum from the underlying granite, gneiss, and schist. The natural vegetation consists of sweetgum, blackgum, alder, willow, birch, maple, bullrush, and pine. The slope range is 0 to 6 percent.

Color, texture, and depth are variable. In most places, the surface layer is composed of local deposits of sand and clay, 6 to 18 inches thick.

Local alluvial land, wet, is associated with Appling, Durham, Grover, Cecil, and Madison soils. It differs from all of these soils, predominantly in having a gray, fine-textured, sticky subsoil.

Fertility is moderately low, and the organic-matter content is low. Surface runoff is slow, internal drainage is slow, and permeability is slow. The available moisture capacity is very high.

This land type is not suited to cultivated crops, but if drained by ditches it is fairly productive of hay and pasture crops. Some areas have reverted to trees, mostly undesirable hardwoods. (Capability unit Vw–1; woodland suitability group 7; wildlife suitability group 8)

Louisa Series

The Louisa series consists of somewhat excessively drained, strongly acid, micaceous soils that occur on uplands, generally on the side slopes of narrow ridges. The parent material was derived from mica schist, mica gneiss, and quartz mica schist. The depth to bedrock is 1 to 4 feet. The natural vegetation consists of blackjack oak, poplar, hickory, gum, and shortleaf pine. The slope range is 6 to 25 percent.

The surface layer is very dark grayish-brown to yellowish-brown fine sandy loam. It is underlain at a depth of 15 to 20 inches by decomposed mica schist of varied color.

Louisa soils occur in scattered areas in Hart County and are most extensive in the central part. They are associated with Madison soils, which are less micaceous and have more distinct horizons. Most of the acreage is in woodland. Some is in pasture, and a very small acreage is cultivated.

These soils are best suited to pasture or to woodland. They do not respond to fertilizer. They tend to dry out, and they are rapidly leached of plant nutrients.

Louisa fine sandy loam, 6 to 15 percent slopes (LjD).—This is a somewhat excessively drained soil on uplands.

Profile:

0 to 4 inches, very dark grayish-brown fine sandy loam; granular structure; numerous roots and mica flakes; forest litter and leaf mold on surface.
4 to 15 inches, yellowish-brown fine sandy loam; very friable; numerous roots and mica flakes.
15 to 23 inches +, variegated red, yellow, and purple decomposed mica schist.

The surface layer ranges from very dark grayish brown to yellowish brown in color. Included are some areas in which the surface layer is sandy loam or gravelly fine sandy loam. In some areas, there is a thin layer of sandy clay loam just above the decomposed mica schist. Fragments of schist and quartz are common throughout the profile.

This soil is low or very low in natural fertility. In uncultivated areas, it contains a little organic matter. Surface runoff, the rate of infiltration, and permeability are rapid. The available moisture capacity is low or very low.

Most of this soil is in woodland. It is best suited to permanent pasture or to woodland. Erosion is a moderate hazard in cultivated areas, but, if well managed, the smoother slopes are fairly well suited to cultivation. (Capability unit VIe–3; woodland suitability group 8; wildlife suitability group 5)

Louisa fine sandy loam, 15 to 25 percent slopes (LjE).—This soil is adjacent to streams. Because it has stronger slopes than Louisa fine sandy loam, 6 to 15 percent slopes, surface runoff is more rapid and the rate of infiltration is slower.

This soil is steep and shallow. It is hard to work and is very low in productivity. It is not suited to cultivation and is best used for pasture, trees, or other permanent vegetation. Most of the acreage is in mixed hardwoods and pines, either the original growth or volunteer regrowth. (Capability unit VIIe–2; woodland suitability group 8; wildlife suitability group 5)

Louisburg Series

The Louisburg series consists of somewhat excessively drained, strongly acid, micaceous soils that occur on uplands, generally on the side slopes of narrow ridges. The parent material was derived from mica schist, mica gneiss, and quartz mica schist. The depth to bedrock is 1 to 4

The surface layer is grayish-brown to dark-gray sandy loam. It is underlain by pale-brown sandy loam mixed with yellowish-red sandy clay loam and partially weathered material.

Louisburg soils occur in small scattered areas throughout Hart County but are most extensive in the northern part. They are associated with Appling and Cecil soils. They have a thinner profile than Cecil and Appling soils, and in places they have only a thin, discontinuous layer of sandy clay loam.

Most of the acreage is in forest. Some moderately sloping areas are in pasture and crops. Plant nutrients leach out readily, and outcrops of granite interfere with cultivation.

Louisburg sandy loam, 6 to 15 percent slopes, eroded (LnD2).—This is a somewhat excessively drained soil on uplands.

Profile:

0 to 5 inches, grayish-brown sandy loam; granular structure.
5 to 31 inches, pale-brown sandy loam mixed with yellowish-red sandy clay loam and partially weathered gneiss and schist.
31 to 36 inches, partially weathered gneiss and schist; high content of quartz.
36 inches +, bedrock.

The surface layer ranges from light grayish brown to dark gray in color. In some areas the texture is loamy coarse sand. The depth to bedrock ranges from 12 to 48 inches within a distance of a few feet. In small areas a 6- to 12-inch B horizon of sandy clay loam has formed.

This soil is low in natural fertility and contains little organic matter. Stones and rock outcrops make it hard to work. The rate of infiltration is rapid, runoff is slow, and the available moisture capacity is low.

Most of the acreage is woodland. Some of the smoother areas have been cleared and are used for crops and pasture. Only a few kinds of crops can be grown. Deep-rooted ones that will grow in a droughty soil are best suited. (Capability unit VIe–3; woodland suitability group 5; wildlife suitability group 5)

Louisburg sandy loam, 15 to 25 percent slopes, eroded (LnE2).—In comparison with Louisburg sandy loam, 6 to 15 percent slopes, eroded, this soil has more rapid runoff, slower infiltration, and a lower available moisture capacity. The depth to bedrock is a few inches less, and rock outcrops are more common. Included are small areas that have a thin subsoil of sandy clay loam.

This soil is not suited to cultivation, but cleared areas are fairly well suited to pasture. Most of the acreage is wooded. This soil is best suited to trees. (Capability unit VIIe–2; woodland suitability group 5; wildlife suitability group 5)

Madison Series

The Madison series consists of well-drained, strongly acid, micaceous soils on uplands. The slope range is 2 to 25 percent. The parent material was derived from quartz mica schist, granite, and gneiss. The natural vegetation consists of oak, sweetgum, blackgum, elm, hickory, dogwood, poplar, and pine.

In areas not severely eroded, the surface layer is brown to yellowish-brown sandy loam. The subsoil is red sandy clay loam.

Madison soils are widely distributed throughout Hart County. They are closely associated with Cecil, Grover, Appling, and Louisa soils. Madison soils are more friable and more micaceous than Cecil soils. Their subsoil is redder than that of Grover soils. They are more micaceous than Appling soils and have a redder subsoil. Madison soils have more distinct horizons than Louisa soils.

Most of the acreage of these soils is in hardwoods and pines. The more gently sloping areas have been cleared and are cultivated. These soils are among the best in the county. They are well suited to most locally grown crops. Yields are high.

Madison sandy loam, 2 to 6 percent slopes, eroded (MgB2).—This is a well-drained soil on uplands.

Profile:

0 to 8 inches, brown to yellowish-brown sandy loam; scattered fragments of mica schist.
8 to 15 inches, yellowish-red sandy clay loam; friable.
15 to 48 inches, red clay loam; yellowish-brown mottles in lower part of layer.
48 to 56 inches +, yellowish-red decayed micaceous rock.

The surface layer ranges from yellowish brown to dark brown in color. Included are some areas that have a surface layer of gravelly fine sandy loam. Some eroded areas have a surface layer of sandy clay loam. The depth to bedrock is 6 to 15 feet or more. In some areas the soil contains small, round iron concretions and garnet pebbles. Mica flakes are common. Fragments of mica schist are scattered on the surface.

Fertility is moderate, and the organic-matter content is low. The rate of infiltration is medium, permeability is moderate, and the available moisture capacity is moderate. Runoff is medium, and the erosion hazard is moderate. There are a few galled spots and shallow gullies and also a few U-shaped gullies 2 to 4 feet deep.

Most of this soil has been cleared and is now in cultivation. It is suited to most locally grown crops. It is well suited to cotton and to pimiento peppers. Crops respond to good management. Close-growing crops should be grown 2 years out of 4. If row crops are grown every other year, winter cover crops should be grown and turned under. All crop residues should be retained. (Capability unit IIe–1; woodland suitability group 2; wildlife suitability group 1)

Madison sandy loam, 2 to 6 percent slopes (MgB).—In comparison with Madison sandy loam, 2 to 6 percent slopes, eroded, this soil has a thicker surface layer, slower runoff, a more rapid rate of infiltration, and a higher available moisture capacity. The erosion hazard is less severe, and fewer gullies have formed. In the wooded areas, the surface layer is 7 to 14 inches thick and the organic-matter content is moderate.

Most of the acreage is in woodland. Small areas are cultivated. If cleared, this soil is suited to most of the locally grown crops, including cotton, pimiento peppers, truck crops, and nursery crops. Row crops can be grown every other year in rotation with close-growing crops. (Capability unit IIe–1; woodland suitability group 2; wildlife suitability group 1)

Madison sandy loam, 6 to 10 percent slopes, eroded (MgC2).—This soil has slightly more rapid runoff and a slower rate of infiltration than Madison sandy loam, 2 to 6 percent slopes, eroded.

Most of the acreage is cultivated or in pasture. A small acreage is woodland. In wooded areas, this soil contains a little more organic matter and has a slightly thicker surface layer. Most of the locally grown crops, including cotton, corn, grain sorghum, small grain, and lespedeza are suited to this soil. Cultivated crops can be grown 1 year in every 3 years if close-growing crops are grown the other 2 years. All crop residues should be retained, and cover crops should be turned under. (Capability unit IIIe–1; woodland suitability group 2; wildlife suitability group 1)

Madison sandy loam, 10 to 15 percent slopes, eroded (MgD2).—This soil has a slightly thinner solum than Madison sandy loam, 2 to 6 percent slopes, eroded. Surface runoff is more rapid, and the rate of infiltration is slower. The erosion hazard is severe.

Most of the acreage is wooded. A small acreage is cultivated or pastured. In wooded areas, the organic-matter content is moderate and the surface layer is a little thicker than in cultivated areas. This soil is suited to pasture, to hay crops, or to trees. Although poorly suited to cultivation, it can be used for a row crop 1 year in every 5 years. The rest of the time, it should be kept in close-growing crops. (Capability unit IVe–1; woodland suitability group 2; wildlife suitability group 2)

Madison sandy loam, 15 to 25 percent slopes, eroded (MgE2).—This soil is 6 to 8 inches shallower than Madison sandy loam, 2 to 6 percent slopes, eroded. It has more rapid runoff, a slower rate of infiltration, and a lower available moisture capacity. Most areas are wooded, and in these the organic-matter content is moderate. The erosion hazard is very severe.

Most of the acreage is in pines and hardwoods. This soil is not suited to cultivated crops. It is best suited to trees and to pasture. It should be kept in permanent vegetation. (Capability unit VIe–2; woodland suitability group 2; wildlife suitability group 2)

Madison gravelly sandy loam, thin solum, 2 to 6 percent slopes, eroded (MDB2).—This soil occurs as small areas on ridgetops. The solum is 6 to 10 inches thinner than that of Madison sandy loam, 2 to 6 percent slopes, eroded. Fragments and pebbles of mica schist and quartzite, 1 to 3 inches in size, are common throughout the profile. Surface runoff is medium to slow. The erosion hazard is moderate.

Most of the acreage is cultivated. This soil is suited to most of the locally grown crops. Yields are good. Row crops can be grown every other year, if rotated with close-growing crops. All crop residues should be retained. (Capability unit IIe–1; woodland suitability group 2); wildlife suitability group 1)

Madison gravelly sandy loam, thin solum, 6 to 10 percent slopes, eroded (MDC2).—The solum of this soil is 6 to 10 inches thinner than that of Madison fine sandy loam, 2 to 6 percent slopes, eroded. Surface runoff is more rapid, the rate of infiltration is slower, and the available moisture capacity is lower. Included are small areas in which the layer of sandy clay loam is thin and discontinuous. Fragments and pebbles of mica schist and quartzite, 1 to 3 inches in size, are common throughout the profile.

Most of the acreage is in cotton and corn. Yields are fairly good. This soil is suited to most of the locally grown crops. A close-growing crop is needed 2 years out of 3 or 4. (Capability unit IIIe–1; woodland suitability group 2; wildlife suitability group 1)

Madison gravelly sandy loam, thin solum, 10 to 15 percent slopes, eroded (MDD2).—The solum of this soil is 8 to 12 inches thinner than that of Madison sandy loam, 2 to 6 percent slopes, eroded. Surface runoff is more rapid, the rate of infiltration is slower, and the available moisture capacity is lower. Included are small areas in which the layer of sandy clay loam is thin and discontinuous. Fragments and pebbles of mica schist and quartzite, 1 to 3 inches in size, are common throughout the profile. The erosion hazard is severe.

This soil is too steep and too gravelly to be well suited to cultivation. It is best suited to trees or to pasture. A row crop can be grown occasionally, in a long rotation. Yields are moderately high. Most of the acreage is wooded. (Capability unit IVe–1; woodland suitability group 2; wildlife suitability group 2)

Madison gravelly sandy loam, thin solum, 15 to 25 percent slopes, eroded (MDE2).—The solum of this soil is 10 to 14 inches thinner than that of Madison sandy loam, 2 to 6 percent slopes, eroded. Surface runoff is more rapid, the rate of infiltration is slower, and the available moisture capacity is lower. Included are small areas in which the layer of sandy clay loam is thin and discontinuous. Fragments and pebbles of mica schist and quartzite, 1 to 3 inches in size, are common throughout the profile. The erosion hazard is severe.

Most of the acreage is in mixed hardwoods and pine. This soil is not suited to cultivation. It should be kept in forest or other permanent vegetation. (Capability unit VIe–2; woodland suitability group 2; wildlife suitability group 2)

Madison sandy clay loam, 2 to 6 percent slopes, severely eroded (MlB3).—This soil has a finer textured surface layer and more rapid runoff than Madison sandy loam, 2 to 6 percent slopes, eroded. The plow layer is yellowish-red sandy clay loam. A few areas that have a surface layer of fine sandy loam are included. Small mica flakes are scattered over the surface. Many shallow gullies and a few deep, U-shaped gullies have formed.

Fertility is low, and the organic-matter content is low. The rate of infiltration is slow, and the available moisture capacity is low.

All of this soil has been cleared and cultivated. In the past it was used continuously for cotton and corn. Now, row crops should be grown only occasionally and under very careful management. Close-growing crops should be grown 2 years out of 3 or 4. All crop residues should be retained, and a winter cover crop turned under. (Capability unit IIIe–1; woodland suitability group 4; wildlife suitability group 3)

Madison sandy clay loam, 6 to 10 percent slopes, severely eroded (MlC3).—In comparison with Madison sandy loam, 2 to 6 percent slopes, eroded, this soil has a finer textured surface layer and more rapid surface runoff. The surface layer is yellowish-red sandy clay loam. A few areas that have a surface layer of fine sandy loam are included. There are many galled spots and shallow gullies, and also a few U-shaped gullies 2 to 5 feet deep.

Fertility is low, and the organic-matter content is low. The rate of infiltration is slow, and the available moisture capacity is moderate to low.

All of this soil has been cleared and cultivated. At present, some is used for pasture, some for cultivated crops, and some for hay crops. Some of the acreage has reverted to pine and brush. This soil is best suited to pasture or to trees. If well managed, it can be used occasionally for a row crop. All crop residues should be retained, and winter cover crops should be turned under. (Capability unit IVe–1; woodland suitability group 4; wildlife suitability group 3)

Madison sandy clay loam, 10 to 15 percent slopes, severely eroded (MlD3).—The solum of this soil is 6 to 10 inches thinner than that of Madison sandy loam, 2 to 6 percent slopes, eroded. The surface layer is finer textured; it is composed mostly of yellowish-red material that was originally part of the subsoil. There are many galled spots and shallow gullies, and also a few U-shaped gullies 3 to 6 feet deep.

The organic-matter content is very low. Surface runoff is rapid, the rate of infiltration is slow, and the available moisture capacity is low. The erosion hazard is severe.

All of this soil has been cleared and cultivated at some time. Some areas are now used for trees or pasture. This soil is not suited to cultivated crops. It is best suited to trees or to other permanent vegetation. (Capability unit VIe–2; woodland suitability group 4; wildlife suitability group 4)

Madison sandy clay loam, 15 to 25 percent slopes, severely eroded (MlE3).—This soil occurs in areas adjacent to streams and intermittent drainageways. It has thinner and less distinct horizons than Madison sandy loam, 2 to 6 percent slopes, eroded. The surface layer is composed mostly of red, fine-textured material that was originally part of the subsoil. There are many galled spots and shallow gullies, and also a few U-shaped gullies 3 to 6 feet deep.

The organic-matter content is low. Surface runoff is very rapid, the rate of infiltration is very slow, and the available moisture capacity is low.

Small areas have been cleared and cultivated in the past but have reverted to hardwoods and pines. Most of the acreage is now woodland. This soil is not suited to pasture or to cultivated crops. It is best suited to trees or to other permanent vegetation. (Capability unit VIIe–1; woodland suitability group 4; wildlife suitability group 4)

Mine Pits and Dumps

Mine pits and dumps (Mpd).—This land type consists of open pits from which mica has been mined and of areas where the soil material removed in mining operations has been dumped. It occupies about 175 acres just south of Hartwell. The area is characterized by an intricate pattern of deep and shallow gullies. Scrub pines and brush are growing in spots.

This land type is not suitable for cultivation, but it can be managed so as to afford some protection to the watershed. Establishing vegetation requires intensive care. (Capability unit VIIIs–1; not suitable for commercial woodland; no wildlife suitability group)

Rock Land

Rock land (Roc).—This land type consists of areas in which 50 to 90 percent of the surface is occupied by outcrops of granitic bedrock (fig. 9). The soil material between the rock outcrops is 12 to 18 inches deep, and the horizon development is variable. The slope range is 2 to 15 percent.

This land type occurs in small areas throughout the county. It is not suited to crops or pasture. Recreational areas could be developed. Shrubs, grasses, mosses, and a few scrub pines and hardwoods grow in small pockets of soil or in crevices in the rocks. (Capability unit VIIIs–1; not suitable for commercial woodland; no wildlife suitability group)

Wehadkee Series

The Wehadkee series consists of poorly drained, mottled, strongly acid, medium-textured soils on first bottoms. The slope range is 0 to 2 percent. The parent material was alluvium recently washed from soils derived from granite, gneiss, and basic rock. The natural vegetation consists of marsh grasses and of oak, poplar, ash, elm, maple, willow, and alder.

Wehadkee soils occupy a small acreage along the larger branches and creeks throughout the county. They are the poorly drained members of the catena that includes the brown, well-drained Congaree soils and the brown, mottled, somewhat poorly drained Chewacla soils.

Most of the acreage is in forest and shrubs. Areas drained by means of open ditches are used for pasture and native hay.

Wehadkee soils (Wed).—These deep soils occur on first bottoms, in pockets near the toe of the upland slopes. The slope range is 0 to 2 percent.

Profile:

0 to 6 inches, gray silt loam; sticky.
6 to 28 inches, gray silt loam; sticky; strong-brown and faint-gray splotches.
28 to 51 inches +, light-gray sandy clay loam mixed with some gravel and sand; splotched with brownish yellow.

The surface layer ranges from dark brown to light gray in color and from fine sandy loam to silty clay in texture. The subsoil ranges from light brownish gray to gray in color.

Fertility is moderately high, and the organic-matter content is moderate. Runoff is slow, permeability is slow to moderately slow, and internal drainage is slow. The erosion hazard is slight. Floods periodically deposit new alluvium.

Most of the acreage is covered with a mixture of undesirable hardwoods and an undergrowth of marsh grasses. Only the better drained areas are suitable for pasture. Cultivated crops can be grown only where drainage ditches have been installed. Even in such areas, the use of these soils is limited by frequent floods and a high water table. (Capability unit IVw–1; woodland suitability group 9; wildlife suitability group 8)

Wickham Series

The Wickham series consists of deep, well-drained, strongly acid soils. The parent material was old alluvium

Figure 9.—Rock outcrops on Rock land.

deposited on moderate to high stream terraces. The slope range is 2 to 10 percent, but slopes of 2 to 6 percent are the most common. The natural vegetation consists of hickory, maple, birch, oak, and pine.

The surface layer is dark-brown fine sandy loam. The subsoil is reddish-brown to red clay loam. Round quartz pebbles occur throughout the profile.

Wickham soils occupy a small acreage near the Savannah River and near other large streams in Hart County. They are associated with Altavista soils but are on higher terraces. Wickham soils are better drained than Altavista soils, and they have a browner surface layer and a redder subsoil. They resemble Cecil and Madison soils of the adjacent uplands.

Wickham fine sandy loam, 2 to 6 percent slopes, eroded (WgB2).—This is a deep, well-drained soil on stream terraces.

Profile:

0 to 7 inches, dark-brown fine sandy loam; very friable.
7 to 28 inches, yellowish-red to reddish-brown sandy clay loam to clay loam; firm to friable; blocky structure.
28 to 52 inches, red clay to clay loam; friable; many small mica flakes.

The surface layer is dark-brown to yellowish-red fine sandy loam. Small areas that have a surface layer of sandy loam and loam are included. In the most severely eroded areas the plow layer is red sandy clay loam. The subsoil is variable in color and thickness. The depth to bedrock is 8 to 15 feet or more. Pebbles 10 to 20 millimeters in diameter occur throughout the profile.

Fertility is moderate, and the organic-matter content is moderate to low. Surface runoff is medium, the rate of infiltration is medium, permeability is moderate, and the available moisture capacity is moderate.

Most of the acreage is in pasture and cultivated crops. A small acreage is in woodland. This soil is suited to many kinds of crops. The less severely eroded areas are well suited to truck crops and nursery crops. Row crops can be grown 2 years out of 4, in rotation with close-growing crops. All crop residues should be retained, and green-manure crops should be turned under. This soil is well suited to sprinkler irrigation. (Capability unit IIe–1; woodland suitability group 3; wildlife suitability group 1)

Wickham clay loam, 6 to 10 percent slopes, severely eroded (WhC3).—This soil has a redder, finer textured surface layer than Wickham fine sandy loam, 2 to 6 percent slopes, eroded. Surface runoff is more rapid, and the rate of infiltration is slower. The organic-matter content

is very low. There are many galled spots and shallow gullies, and also a few gullies 2 to 5 feet deep. The erosion hazard is severe.

All of this soil has been cleared and cultivated. Some of it is now in pasture and row crops, and some has reverted to pines and hardwoods. This soil is best suited to pasture. It tends to bake and clod if cultivated but can be used occasionally for a cultivated crop. Crops should be planted on the contour, and all crop residues should be retained. (Capability unit IVe–1; woodland suitability group 4; wildlife suitability group 3)

Genesis, Morphology, and Classification of the Soils

This section consists of two main parts. The first part discusses the factors of soil formation as they relate to the development of soils in Hart County. The second part discusses the great soil groups in the county, classifies the soil series according to great soil groups and orders, describes the characteristics of each group, and describes a profile representative of each series.

Factors of Soil Formation

The factors that contribute to the differences among soils are parent material, climate, living organisms, topography, and time. All of these factors are important, but, in different locations and under different conditions, some have more effect than others. In extreme cases one factor may dominate in the formation of a soil and determine most of its properties, as is common when the parent material consists of pure quartz sand. Quartz sand is highly resistant to change, and the soils derived from it usually have faint horizons. Even in quartz sand, however, distinct profiles can be formed under certain types of vegetation if the topography is low and flat and the water table is high. Thus, for every soil, it is the past combinations of the five major factors that are of first importance to its present character. A brief discussion of these factors of soil formation is given in this section.

Parent material

Parent material is the unconsolidated mass from which soils develop. It is largely responsible for the chemical and mineralogical composition of soils.

Most of the soils in Hart County formed from residual material, that is, material that weathered from the underlying rock. Only about 6 percent of the acreage is occupied by soils that formed from alluvium.

According to Grant (*4*), granite and metamorphic rock underlie most of the soils. About 50 percent of the county is occupied by soils underlain by mica schist in which there are minor layers of biotite plagioclase, gneiss, and quartzite. Madison, Louisa, and Grover soils formed in material derived from these kinds of rock. About 42 percent of the county is occupied by soils underlain by muscovite granite, biotite gneiss, and, to a limited extent, mica schist. Cecil, Appling, Durham, and Louisburg soils formed in material derived from these kinds of rock. Hornblende gneiss and diorite underlie about 2 percent of the county. Lloyd soils formed in material derived from these kinds of rock.

The soils that consist of alluvium are mostly along the Savannah River and other large streams. Much of the alluvium was derived from rocks in the nearby uplands, but some of it was derived from granite and metamorphic rocks in the Blue Ridge Mountains to the northwest. About 5 percent of the county is occupied by soils that consist of young alluvium and show little evidence of profile development. These soils are on flood plains. They are soils in the Wehadkee, Buncombe, Chewacla, and Congaree series. About 1 percent of the county is occupied by soils that formed from old alluvium and have distinct horizons. These soils are on terraces. They are in the Altavista and Wickham series.

Climate

Climate, as a genetic factor, affects the physical, chemical, and biological character of the soils primarily through the influence of precipitation and temperature. Water dissolves minerals, supports biological activity, and transports mineral and organic residues through the soil profile. Temperature influences the kinds and growth of organisms and the speed of physical and chemical reactions in the soils.

The climate of Hart County is of the humid, warm-temperate, continental type that is characteristic of the southeastern part of the United States. The average temperature and the distribution of rainfall by months are indicated in table 1 (p. 2). With this kind of climate, the soils are moist much of the time from November 15 through August 31 and are moderately dry much of the time from September 1 through November 14. The surface soil is frozen to a depth of 1 to 3 inches only a few days during the year. As can be expected where this type of climate exists, most of the soils in Hart County are highly weathered, well drained, strongly acid, and low in fertility.

The climate is nearly uniform throughout the county, so it does not account for any of the differences among the soils.

Living organisms

The kinds and numbers of plants and animals that live on and in the soil depend, in large part, on climate and, to varying degrees, on parent material, topography, and the age of the soil.

Micro-organisms, insects, small plants, and small animals exert a continual effect on the physical and chemical properties of the soils. Bacteria, fungi, and other micro-organisms speed the weathering of rock and the decomposition of organic matter. Earthworms and other small invertebrates carry on a slow but continual cycle of soil mixing. Soil ingested by earthworms may be altered chemically.

Larger plants return organic matter to the soils. They also transfer elements from the subsoil to the surface soil by assimilating these elements into their tissue and then depositing this tissue on the surface of the soil in the form of fallen fruit, leaves, or stems. When trees are uprooted soil material is brought to the surface by the upturned roots.

The complex of living organisms affecting soil formation in Hart County has been drastically changed as a result of man's activity. The clearing of the forests, the

cultivation of the soils, and the introduction of new kinds of plants will be reflected in the direction and rate of soil formation in the future. Except for a decrease in the organic-matter content and the loss of soil through erosion in cultivated areas, few effects of these changes are evident as yet.

Topography

Topography influences soil formation through its effect on moisture relations, erosion, temperature, and plant cover.

The slope range in Hart County is from 0 to 25 percent. Most of the soils along interstream divides are deep to bedrock and have well-defined horizons. Where the slope is as much as 15 to 25 percent, geologic erosion removes the soil material almost as fast as it forms, and the soils do not have well-defined horizons. The soils on stream terraces are undulating or gently sloping and generally have well-defined horizons. The soils on flood plains are nearly level, but they do not have well-defined horizons, because new alluvium is deposited on them periodically.

Time

The length of time required for a mature soil to develop depends largely on the other factors of soil formation. Less time is generally required for a soil to develop in humid, warm areas that have rank vegetation than in dry or cold areas where the vegetation is scant. Also, less time is required if the parent material is coarse textured than if it is fine textured, other factors being equal. The influence of topography is also important.

Generally, older soils show a greater degree of horizon differentiation than younger ones. For example, on the smoother parts of the uplands and on the older stream terraces, the soils have developed to maturity, but on the stronger slopes geologic erosion has removed the soil material as fast as it has formed. On flood plains and in the areas of local alluvium, periodic deposits of new material have prevented the development of a profile.

Morphology and Classification

The soil classification system used in the United States consists of six categories (*6*). Beginning with the most inclusive, these categories are the order, the suborder, the great soil group, the family, the series, and the type.

There are three orders and thousands of types. The suborder and family categories have never been fully developed and consequently have been little used. Attention has been concentrated on the classification of soils into types and series within counties or comparable areas and on the subsequent grouping of series into great soil groups and orders.

The soil series of Hart County are listed by great soil groups in table 16. This table also gives some of the distinguishing characteristics of each series. The great soil groups, grouped by orders, are described in the following pages.

Zonal order

The zonal order consists of soils that have evident, genetically related horizons that reflect the predominant influence of climate and living organisms in their formation.

RED-YELLOW PODZOLIC SOILS

The soils of the Red-Yellow Podzolic great soil group are in the zonal order. These soils formed under a deciduous or mixed forest in a warm-temperate and moist climate. These are well-developed, well-drained, acid soils that have a thin organic A_0 and an organic-mineral A_1 horizon. The A_1 horizon is underlain by a light-colored, bleached A_2 horizon that overlies a red, yellowish-red, or yellow, more clayey B_2 horizon. All of the parent material is more or less siliceous. Coarse, reticulate streaks or mottles of red, brown, and light gray are characteristic of the deep horizons where the parent material is thick (*6*). Kaolinite is the dominant clay mineral. The cation exchange capacity is low, and the percentage of base saturation is very low. The subsoil has a moderate, subangular blocky structure and colors of high chroma. The Red-Yellow Podzolic soils in Hart County have a cation exchange capacity of less than 20 milliequivalents per 100 grams of soil and a percentage of base saturation ranging from 5 to 30 percent.

Soils that conform to the central concept of the Red-Yellow Podzolic group occupy a little more than 80 percent of the county. Red-Yellow Podzolic soils that have some characteristics of Reddish-Brown Lateritic soils occupy about 2 percent, and others that have some characteristics of Low-Humic Gley soils occupy about 1 percent.

All of the soils that fit the central concept originally had a dark-colored, but thin, A_1 horizon and a well-defined A_2 horizon. Plowing and erosion have disturbed these horizons so that the present surface layer consists of a mixture of materials from the original A_1 and A_2 horizons, or of a mixture of materials from the A_2 and B horizons, or predominantly of material from the B horizon. In most areas that are not severely eroded, the surface soil is strongly acid, granular sandy loam. The B horizon has a moderate, medium, subangular blocky structure. It generally contains from two to six times as much clay as the A horizon and nearly twice as much clay as the C horizon. This last characteristic is not common to certain Red-Yellow Podzolic soils in some other parts of the country. Clay films are common to prominent in the B_2 horizon. The C horizon has a weaker structure than the B horizon. It is more mottled and variable in color, and, as a rule, it is more strongly acid.

ALTAVISTA SERIES.—The Altavista series consists of moderately well drained soils that have developed on low stream terraces from old alluvium. They have a yellowish-brown B_2 horizon.

Profile of a representative Altavista soil, on the west side of Shoal Creek, seven-tenths of a mile west of Providence Church.

A_p—0 to 8 inches, dark grayish-brown (2.5Y 4/2) fine sandy loam; weak, fine, granular structure; very friable; fine roots abundant; strongly acid; clear, smooth boundary.

A_3—8 to 15 inches, brown (10YR 5/3) fine sandy loam; moderate, medium, subangular blocky structure; friable; fine roots abundant; strongly acid; clear, wavy boundary.

B_2—15 to 23 inches, yellowish-brown (10YR 5/4) sandy clay loam; strong, coarse and medium, subangular blocky structure; firm; strongly acid; gradual, wavy boundary.

TABLE 16.—*Classification of soils by great soil groups and series, and brief description of soils*

Great soil groups and soil series	Brief profile description	Position	Drainage	Slope range	Parent material	Degree of profile development
Red-Yellow Podzolic soils: Central concept:				*Percent*		
Altavista	Dark grayish-brown fine sandy loam, over mottled yellowish-brown sandy clay loam; occasional layers of sand and gravel at a depth of more than 44 inches.	Low stream terraces	Moderately good.	2 to 6	Old alluvium	Strong.
Appling	Dark grayish-brown sandy loam or loamy coarse sand, over mottled yellowish-red to strong-brown sandy clay loam to clay; highly weathered rock at a depth of 44 to 48 inches.	Upland slopes and ridges.	Good	2 to 15	Material weathered from granite, gneiss, and some mica schist.	Strong.
Cecil	Dark grayish-brown sandy loam, over yellowish-red sandy clay loam grading to red clay loam at a depth of 32 to 48 inches.	Upland slopes and ridges.	Good	2 to 25	Material weathered from granite, gneiss, and some mica schist.	Strong.
Durham	Olive-gray loamy coarse sand, over light olive-brown sandy clay loam; distinct mottles of pale olive and yellowish red at a depth of 22 to 32 inches.	Broad, upland slopes.	Good	0 to 6	Material weathered from coarse-grained granite, gneiss, and some mica schist.	Medium to strong.
Grover	Brown sandy loam grading to reddish-yellow sandy loam, over mottled yellowish-red sandy clay loam; highly weathered micaceous material at a depth of 37 to 67 inches.	Upland slopes and ridges.	Good	2 to 10	Material weathered from quartz mica schist and micaceous gneiss.	Medium to strong.
Madison	Brown to yellowish-brown sandy loam, over friable, yellowish-red to red clay loam; highly weathered mica schist at a depth of more than 48 to 56 inches.	Upland slopes and ridges.	Good	2 to 25	Material weathered from quartz mica schist, granite, and gneiss.	Strong.
Wickham	Dark-brown fine sandy loam, over friable to firm, yellowish-red to reddish–brown sandy clay loam to clay loam; some water-rounded pebbles at a depth of 28 to 52 inches.	Moderate to high stream terraces.	Good	2 to 10	Old alluvium	Strong.
Grading toward Reddish-Brown Lateritic soils:						
Lloyd	Dark-brown sandy loam, over red to dark-red clay loam; hard when dry, sticky when wet; splotched with weathered basic rocks at a depth of 44 to 48 inches.	Upland slopes and ridges.	Good	2 to 25	Material weathered from diorite, hornblende schist, gneiss, granite, and to a limited extent, mica schist.	Strong.

TABLE 16.—*Classification of soils by great soil groups and series, and brief description of soils*—Continued

Great soil groups and soil series	Brief profile description	Position	Drainage	Slope range	Parent material	Degree of profile development
Red-Yellow Podzolic soils—Con. Grading toward Low-Humic Gley soils:				*Percent*		
Colfax	Light grayish-brown sandy loam, over mottled light yellowish-brown and light-gray sandy clay loam; hard when dry, sticky when wet; disintegrated granite or gneiss at a depth of 28 to 36 inches.	Areas at the head of draws and in depressions.	Somewhat poor.	2 to 6	Material weathered from granite, gneiss, and some schist.	Medium.
Low-Humic Gley soils:						
Wehadkee	Mottled, grayish, medium-textured material underlain by light-gray sandy clay loam; some mixed gravel and sand at a depth of 28 to 51 inches.	Flood plain	Poor	0 to 2	Recent alluvium	Weak.
Lithosols:						
Louisa	Very dark grayish-brown to yellowish-brown fine sandy loam, over a thin, discontinuous layer of yellowish-red, friable silt loam; decomposed red, yellow, and purple mica schist.	Upland slopes	Somewhat excessive	6 to 25	Material weathered from mica schist, mica gneiss, and quartz mica schist.	Weak.
Louisburg	Grayish-brown to pale-brown sandy loam, over yellowish-red sandy clay loam material mixed with partially weathered granite, gneiss, and schist; bedrock of granite and mica gneiss at a depth of 1 to 4 feet.	Upland slopes and ridges.	Somewhat excessive.	6 to 25	Material weathered from granite and mica gneiss.	Weak.
Alluvial soils:						
Buncombe	Dark yellowish-brown, loose, very friable loamy sand, over yellowish-brown, reddish-brown, and strong-brown sandy material.	Flood plain	Excessive	0 to 6	Recent alluvium	Weak.
Chewacla	Mostly mixed, reddish-brown fine sandy loam and silty clay loam, over yellowish-red silt loam; distinctly mottled with pale brown and very dark gray; highly mottled brownish-yellow and brownish-gray layers at a depth of 25 to 36 inches.	Flood plain	Somewhat poor.	0 to 2	Recent alluvium	Weak.
Congaree	Mostly mixed, reddish-brown sandy loam and silty clay loam, over yellowish-red sandy loam; yellowish-brown layers with faint, light-red splotches at a depth of 33 to 40 inches.	Flood plain	Moderately good to good.	0 to 2	Recent alluvium	Weak.

B_3—23 to 32 inches, light olive-brown (2.5Y 5/4) sandy clay loam; few, fine, faint, dark grayish-brown (2.5Y 4/2) mottles; strong, coarse and medium, subangular blocky structure; firm; strongly acid; gradual, wavy boundary.

C—32 to 44 inches +, light olive-brown (2.5Y 5/4) sandy clay loam; moderate, medium, subangular blocky structure; common, fine, faint, brownish-yellow (10YR 6/8) and light brownish-gray (2.5Y 6/2) mottles; friable; strongly acid.

MADISON SERIES.—Madison soils are good examples of Red-Yellow Podzolic soils that have a subsoil of a red hue (2.5YR) and high chroma (6 or more). These soils have a slick, greasy feel.

Profile of a representative Madison soil, in a moist, cultivated field along Georgia Highway No. 172, about 150 yards south of Robinson Creek.

A_p—0 to 5 inches, brown (10YR 5/3) sandy loam; weak, fine, granular structure; very friable; some mica fragments; many small roots; strongly acid; clear, wavy boundary.

A_3—5 to 8 inches, yellowish-brown (10YR 5/4) sandy loam; weak, fine, granular structure; very friable; some mica fragments; many small roots; very strongly acid; clear, wavy boundary.

B_1—8 to 15 inches, yellowish-red (5YR 5/8) sandy clay loam; moderate, medium, subangular blocky structure; friable; many mica flakes; strongly acid; clear, wavy boundary.

B_2—15 to 42 inches, red (2.5YR 4/8) clay loam; moderate, medium, subangular blocky structure; friable; many small mica flakes and clay films on peds; strongly acid; gradual, wavy boundary.

B_3—42 to 48 inches, red (2.5YR 4/8) silty clay loam; few, fine, distinct, yellowish-brown (10YR 5/8) mottles: moderate, medium, subangular blocky structure; very friable; many small mica flakes and clay films on peds; strongly acid; gradual, wavy boundary.

C—48 to 56 inches +, yellowish-red decayed micaceous rocks.

CECIL SERIES.—Cecil soils are like Madison soils except that they are less micaceous.

Profile of a representative Cecil soil in a road cut 100 yards due north of Old Canon Church.

A_1—0 to 3 inches, dark grayish-brown (10YR 4/2) sandy loam; weak, fine, granular structure; very friable; mixed with leaf mold; many fine roots; strongly acid; clear, smooth boundary.

A_2—3 to 10 inches, strong-brown (7.5YR 5/6) sandy loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

B_1—10 to 14 inches, yellowish-red (5YR 5/6) sandy clay loam; moderate, medium and fine, subangular blocky structure; friable; fine roots; strongly acid; clear, smooth boundary.

B_2—14 to 32 inches, red (2.5YR 4/8) clay loam; moderate, medium, subangular blocky structure; firm; few small roots; strongly acid; gradual, wavy boundary.

B_3—32 to 48 inches, red (2.5YR 4/8) clay loam; moderate, medium, subangular blocky structure; common, fine, distinct, yellowish-red (5YR 5/8) mottles; friable or firm; strongly acid; gradual, wavy boundary.

C—48 to 56 inches +, red (2.5YR 5/6) sandy loam splotched with strong brown (7.5YR 5/8); very friable; disintegrated granite and gneiss material; few small mica flakes.

WICKHAM SERIES.—Wickham soils are similar to Cecil and Madison soils in drainage and degree of profile development, but they have developed on stream terraces from old alluvium rather than in place from residual material. This alluvium was washed from material that weathered from granite, gneiss, and quartzite. The A_p horizon of Wickham soils is browner than that of Cecil and Madison soils. The B_2 horizon of Wickham soils has a lower chroma than that of Cecil and Madison soils.

Profile of a representative Wickham soil, in a cultivated field near Little Shoal Creek, 1.2 miles west of Maretts Community Store.

A_p—0 to 7 inches, dark-brown (10YR 4/3) fine sandy loam; weak, medium, granular structure; very friable; fine roots abundant; strongly acid; clear, smooth boundary.

B_1—7 to 12 inches, yellowish-red (5YR 4/6) sandy clay loam; weak, fine, subangular blocky structure; friable; few fine roots; strongly acid; gradual, wavy boundary.

B_2—12 to 28 inches, reddish-brown (2.5YR 4/4) clay loam; moderate, medium, subangular blocky structure; firm; some small roots; strongly acid; gradual, wavy boundary.

B_3—28 to 36 inches +, red (2.5YR 4/6) clay; weak, medium and coarse, angular blocky structure; friable; few rounded quartz pebbles and many small mica flakes.

C—36 to 52 inches +, red (2.5YR 5/8) clay loam; weak, medium, angular blocky structure; friable; many small mica flakes; underlain by residual material.

APPLING SERIES.—Appling soils have a less reddish B_2 horizon than Cecil and Madison soils and are shallower to mottled or reticulated material. The color of the B_2 horizon is within the range of the 7.5YR hue and 5YR hue; that of the B_2 horizon of Cecil and Madison soils is a 2.5YR hue.

Profile of a representative Appling soil, in a moist, cultivated field, 1 mile northeast of Vanna.

A_p—0 to 7 inches, dark grayish-brown (10YR 4/2) sandy loam; weak, fine, granular structure; very friable; small roots abundant; strongly acid; clear, wavy boundary.

B_1—7 to 15 inches, strong-brown (7.5YR 5/6) sandy clay loam; moderate, medium, subangular blocky structure; friable; some small roots; strongly acid; gradual, wavy boundary.

B_2—15 to 31 inches, yellowish-red (5YR 5/8) sandy clay loam; moderate, medium, subangular blocky structure; firm; strongly acid; gradual, wavy boundary.

B_3—31 to 44 inches, red (2.5YR 4/8) clay; coarse, angular blocky structure; many fine, distinct, brownish-yellow (10YR 6/6) mottles; firm; strongly acid; gradual, wavy boundary.

C—44 to 48 inches +, red (2.5YR 5/8) sandy clay loam; light-red (2.5YR 6/6) and brownish-yellow (10YR 6/6) mottles; structureless; friable; very small mica flakes.

GROVER SERIES.—Grover soils are similar to Appling soils in color and texture, but they contain more mica schist and they have a slick, greasy feel.

Profile of a representative Grover soil along Georgia Highway No. 172, 7½ miles south of Hartwell city limits.

A_p—0 to 8 inches, brown (10YR 5/3) sandy loam; weak, fine, granular structure; very friable; numerous mica flakes; strongly acid; clear, wavy boundary.

A_3—8 to 13 inches, reddish-yellow (7.5YR 6/6) sandy loam; weak, medium, subangular blocky structure; friable; numerous mica flakes; strongly acid; clear, wavy boundary.

B_2—13 to 25 inches, yellowish-red (5YR 5/8) sandy clay loam splotched with reddish yellow (7.5YR 6/6); moderate, medium, subangular blocky structure; firm; numerous mica flakes and some small grains of quartz; strongly acid; clear, wavy boundary.

B_3—25 to 37 inches, yellowish-red (5YR 5/8) sandy clay loam; very fine, subangular blocky structure; friable; many fine mica flakes; strongly acid; clear, wavy boundary.

C—37 to 67 inches, reddish-yellow (5YR 6/6) and white (2.5YR 8/2) partly decomposed micaceous rocks; many fine mica flakes.

DURHAM SERIES.—Durham soils are distinguished from Cecil and Madison soils by their predominantly yellower B_2 horizon and by prominent mottling at a depth of about 22 inches. Generally, the B_2 horizon is not so fine textured as that of Cecil and Madison soils, but the C horizon may be as fine textured, and it commonly contains many small mica flakes. Durham soils have a thicker and coarser textured surface layer and a thinner and less strongly developed B_2 horizon than Cecil and Madison soils.

Profile of a representative Durham soil, in a moist, cultivated field, seven-tenths of a mile east of Vanna.

A_p—0 to 5 inches, olive-gray (5Y 5/2) loamy coarse sand; weak, fine, granular structure; very friable; fine roots; gradual, smooth boundary.

A_2—5 to 14 inches, light yellowish-brown (2.5Y 6/4) loamy coarse sand; weak, coarse, granular structure; very friable; many small roots; strongly acid; gradual, wavy boundary.

B_2—14 to 22 inches, light olive-brown (2.5Y 5/6) sandy clay loam; moderate, medium, subangular blocky structure; friable or firm; strongly acid; gradual, wavy boundary.

B_3—22 to 32 inches, light olive-brown (2.5Y 5/6) sandy clay loam; moderate, medium, subangular blocky structure; common, medium, distinct, pale-olive (5Y 6/4) mottles and few, fine, prominent, yellowish-red (5YR 4/8) mottles; strongly acid; few mica flakes; gradual, wavy boundary.

C—32 to 46 inches +, variegated pale-olive (5Y 6/4), light olive-brown (2.5Y 5/6), and yellowish-red (5YR 4/8) disintegrated granite gneiss; structureless (massive); many small mica flakes.

LLOYD SERIES.—Lloyd soils are Red-Yellow Podzolic soils that have some characteristics of Reddish-Brown Lateritic soils. The B_1 horizon of Lloyd soils is sandier and lighter colored than that of the typical Reddish-Brown Laterite soils. The dark-red B_2 horizon, however, is characteristic of Reddish-Brown Lateritic soils. The A horizon is darker colored than that of Cecil soils, and the B_2 horizon is generally darker colored. The parent material of Lloyd soils is much less micaceous than that of the Madison soils.

Profile of a representative Lloyd soil, in a cultivated field west of Caney Branch, 1¼ miles west of Shoal Creek School.

A_p—0 to 7 inches, dark-brown (7.5YR 4/4) sandy loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

B_1—7 to 12 inches, red (2.5YR 4/8) sandy clay loam; medium, subangular blocky structure; friable; some small roots; strongly acid; clear, smooth boundary.

B_2—12 to 32 inches, dark-red (2.5YR 3/6) clay loam; moderate, medium, subangular blocky structure; firm; sticky when wet, hard when dry; very small quartz grains; strongly acid; clear, wavy boundary.

B_3—32 to 44 inches, red (2.5YR 4/6) clay loam; moderate, medium, subangular blocky structure; firm; splotches of strong brown (7.5YR 5/6); strongly acid; gradual, wavy boundary.

C—44 to 48 inches +, red (2.5YR 4/6) clay loam mixed with disintegrated strong-brown (7.5YR 5/8) basic material and some mica schist flakes; several feet to bedrock.

COLFAX SERIES.—Colfax soils are Red-Yellow Podzolic soils that have some characteristics of Low-Humic Gley soils. They are more poorly drained than the typical Red-Yellow Podzolic soils. They occur around the head of draws and in depressions and have colluvial deposits over the normal A horizon. The A horizon is light olive-brown to gray, very friable sandy loam with a weak, fine, granular structure. The B horizon is mottled, yellow, gray, and light yellowish-brown sandy clay loam that is very firm when moist and plastic when wet.

Profile of a representative Colfax soil at the head of Reed Creek, about 100 yards east of Wilson's Grocery.

A_p—0 to 7 inches, light olive-brown (2.5Y 5/4) sandy loam; weak, fine, granular structure; friable; many fine roots; few quartz pebbles 4 to 8 millimeters in size; very strongly acid; clear, smooth boundary.

A_2—7 to 10 inches, pale-yellow (2.5Y 7/4) sandy loam; weak, coarse and medium, granular structure; friable; many fine roots; few quartz pebbles 4 to 8 millimeters in size; very strongly acid; clear, smooth boundary.

B_1—10 to 14 inches, yellow (2.5Y 7/6) sandy clay loam; moderate, medium, subangular blocky structure; firm; fine roots; very strongly acid; clear, smooth boundary.

B_2—14 to 20 inches, light yellowish-brown (10YR 6/4) sandy clay loam; few, fine, distinct, brownish-yellow (10YR 6/8) mottles; strong, medium, subangular blocky structure; very firm; clay skins on peds; very strongly acid; gradual, irregular boundary.

B_3—20 to 28 inches, light-gray (5Y 7/2) sandy clay loam; moderate, fine, granular structure; common, medium, prominent, light yellowish-brown (10YR 6/4) and brownish-yellow (10YR 6/8) mottles; very friable; very strongly acid; gradual, wavy boundary.

C—28 to 30 inches +, white (5Y 8/1) and light reddish-brown (5YR 6/4) coarse sand; disintegrated granite gneiss; many mica flakes.

Intrazonal order

The intrazonal order consists of soils that have evident, genetically related horizons that reflect the dominant influence of a local factor of topography or parent material over the effects of climate and living organisms. Intrazonal soils occur in nearly level areas where both internal and external drainage are restricted, or where geologic erosion is very slow. They form from material that has been in place for a long time, and they have a fairly well-developed profile.

LOW-HUMIC GLEY SOILS

Low-Humic Gley soils are in the intrazonal order. They are imperfectly drained to poorly drained. They have a very thin surface horizon that is moderately high in organic matter and is underlain by gleylike mineral horizons. These horizons are mottled gray to brown and have little textural differentiation (*6*).

Wehadkee soils are the only Low-Humic Gley soils in Hart County. They occupy less than 1 percent of the county.

WEHADKEE SERIES.—This series consists of poorly drained, strongly acid soils on first bottoms. The water table is at or near the surface except during the driest periods. Virgin areas have a dark-colored, but thin, A_1 horizon. The structure is weak. The reaction is strongly acid, and the base-saturation percentage is low.

Profile of a representative Wehadkee soil along Cedar Creek, 1¼ miles northwest of Cokesbury Church.

A_p—0 to 6 inches, gray (5/0) silt loam; weak, fine, granular structure; sticky; fine roots abundant; strongly acid; clear, wavy boundary.

C_1—6 to 28 inches, gray (5/0) silt loam; common, medium, faint, gray (6/0) mottles; few distinct splotches of strong brown (7.5YR 5/6); structureless (massive); very sticky; strongly acid; diffuse, wavy boundary.

C—28 to 51 inches +, light-gray (7/0) sandy clay loam splotched with brownish yellow (10YR 6/8); structureless (massive); slightly sticky; some gravel and sand lenses.

Azonal order

The azonal order consists of soils that lack distinct, genetically related horizons because of youth, because of resistance of the parent material to the soil-forming processes, or because of steep topography.

LITHOSOLS

Lithosols are azonal soils having an incomplete solum or no clearly expressed soil morphology and consisting of a freshly and imperfectly weathered mass of hard rock or hard rock fragments. They are confined largely to steeply sloping land (*6*). As a result, soil-forming processes have not acted long enough on the materials to produce well-defined soil properties.

Louisa and Louisburg soils are the only Lithosols in Hart County. They occupy about 2 percent of the county.

LOUISA SERIES.—This series consists of gently sloping to steep soils. Strongly sloping and steep soils are predominant. Geologic erosion has nearly kept pace with soil formation. In most places the solum is only 12 to 36 inches thick. The B horizon is thin and discontinuous. In places the A horizon is directly over the C horizon. Louisa soils are generally a little more shallow to bedrock than Louisburg soils. They consist almost entirely of mica schist material.

Profile of a representative Louisa soil in a road cut one-half mile south of radio station WKLY and 50 feet south of where a high-tension powerline crosses the county road.

A_0—0 to 2 inches, very dark gray (5YR 3/1), loose, partly decomposed forest litter from deciduous trees.
A_1—2 to 4 inches, very dark grayish-brown (10YR 3/2) fine sandy loam; weak, fine, granular structure; very friable; many mica flakes and numerous small roots; strongly acid; clear, wavy boundary.
A_3—4 to 15 inches, yellowish-brown (10YR 5/4) fine sandy loam; moderate, medium, subangular blocky structure; very friable; many mica flakes and small roots; strongly acid; gradual, wavy boundary.
C—15 to 23 inches, yellowish-red (5YR 4/6) silt loam; structureless; very friable; disintegrated mica schist.
D—23 inches +, variegated red, yellow, and purple, soft, decomposed mica schist material.

LOUISBURG SERIES.—Louisburg soils are like Louisa soils except that the underlying bedrock consists of granite, gneiss, and some schist.

Profile of a representative Louisburg soil in an abandoned field of scattered pine and hardwoods, 2½ miles south of Eagle Grove School and half a mile west of North Beaverdam Creek.

A_p—0 to 5 inches, grayish-brown (10YR 5/2) sandy loam; weak, fine, granular structure; loose or very friable; many small roots; strongly acid; clear, wavy boundary.
AC—5 to 14 inches, pale-brown (10YR 6/3) sandy loam; weak, medium, granular structure; friable; strongly acid; diffuse, irregular boundary.
C_1—14 to 31 inches, partially weathered granite, gneiss, and schist; yellowish-red (5YR 5/8) sandy clay loam material interspersed between fragments; lumps of kaolinite clay and feldspathic material.
C_2—31 to 36 inches, partially weathered granite, gneiss, and schist containing large amounts of quartz.
D—36 inches +, light-gray granite, gneiss, and mica gneiss.

ALLUVIAL SOILS

Alluvial soils consist of transported and recently deposited material (alluvium) that has been modified little or not at all by soil-forming processes. The characteristics of these soils are determined largely by the nature of the alluvium and the manner in which it has been sorted and deposited (*6*).

Buncombe, Chewacla, and Congaree soils are the Alluvial soils in Hart County. They occupy about 3 percent of the county.

BUNCOMBE SERIES.—This series consists of excessively drained soils on first bottoms. These soils are accumulations of coarse alluvium and have little or no profile development. The A horizon is dark yellowish-brown, loose loamy sand that has a weak, fine, crumb structure; no B horizon has developed. The C horizon is light yellowish-brown to brownish-yellow, loose, structureless loamy fine sand or loamy sand.

Profile of a representative Buncombe soil along the Savannah River, 1 mile south of Louis Morris Memorial Bridge.

A_p—0 to 6 inches, dark yellowish-brown (10YR 4/4) loamy sand; loose and very friable; numerous fine flakes of mica; strongly acid; clear, smooth boundary.
C_1—6 to 11 inches, light yellowish-brown (10YR 6/4) loamy fine sand; very friable; numerous fine flakes of mica; clear, smooth boundary.
C_2—11 to 14 inches, reddish-brown (5YR 4/4) loamy fine sand; friable; numerous fine flakes of mica; strongly acid; clear, smooth boundary.
C_3—14 to 23 inches, strong-brown (7.5YR 5/6) loamy sand; loose; numerous fine flakes of mica; very strongly acid; clear, smooth boundary.
C_4—23 to 47 inches +, brownish-yellow (10YR 6/6) fine sand; very friable and loose; numerous fine flakes of mica and some fine gravel; strongly acid.

CHEWACLA SERIES.—This series consists of somewhat poorly drained soils on first bottoms. They are sometimes flooded. In areas of very recent deposition, there is hardly any horizon differentiation. In areas of older deposition, there is some evidence of horizon differentiation.

Profile of a representative Chewacla soil in a pasture along Little Shoal Creek, 1.2 miles west of Maretts Community Store.

A_p—0 to 6 inches, reddish-brown (5YR 4/4) silt loam; weak, medium, granular structure; friable; mica flakes common; fine roots abundant; very strongly acid; gradual, smooth boundary.
C_1—6 to 16 inches, yellowish-red (5YR 4/8) silt loam; few, fine, faint, pale-brown (10YR 6/3) mottles; moderate, medium, subangular blocky structure; firm; fine roots abundant; very strongly acid; gradual, wavy boundary.
C_2—16 to 25 inches, yellowish-red (5YR 4/8) silt loam; weak, medium, subangular blocky structure; common, medium, distinct, pale-brown (10YR 6/3) mottles; few, fine, distinct, very dark gray (10YR 3/1) mottles; very sticky; strongly acid; gradual, wavy boundary.
C_3—25 to 36 inches +, brownish-yellow (10YR 6/6) silty clay loam; common, fine, distinct, light brownish-gray (2.5YR 6/2) and yellowish-brown (10YR 5/8) mottles; weak, coarse, angular blocky structure; many fine flakes of mica; an excess amount of moisture.

CONGAREE SERIES.—This series consists of moderately well drained and well drained soils that are subject to flooding. Some organic matter has accumulated in the upper part of the profile. Some profiles are finer textured than the one described and show more evidence of horizon differentiation in texture and structure. In places there are sand lenses at various depths in the profile.

Profile of a representative Congaree soil in a bottomland pasture, seven-tenths of a mile south of where Georgia Highway No. 77 crosses Pooles Creek.

A_p—0 to 8 inches, reddish-brown (5YR 4/4) sandy loam; weak, fine, granular structure; very friable; mica flakes common; many fine roots; strongly acid; clear, wavy boundary.

AC—8 to 33 inches, yellowish-red (5YR 5/6) sandy loam; weak, fine, granular structure; friable; mica flakes common; many fine roots; strongly acid; clear, wavy boundary.

D—33 to 40 inches +, yellowish-brown (10YR 5/4) sandy clay loam splotched with common, medium, faint, light-red (2.5YR 6/6) mottles; structureless (massive); very friable; small, fine flakes of mica; strongly acid.

Literature Cited

(1) ABERCROMBIE, W. F.
1954. A SYSTEM OF SOIL CLASSSIFICATION. Proceedings 33d Annual Meeting, Highway Research Board. National Academy of Sciences-National Research Council pub. no. 324: 509–514. Illus.

(2) AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS.
1955. STANDARD SPECIFICATIONS FOR HIGHWAY MATERIALS AND METHODS OF SAMPLING AND TESTING. Ed. 7, 2 v., 257 and 514 p., illus.

(3) CARTER, HORACE S.
1957. LATE SPRING AND EARLY FALL FREEZES IN GEORGIA. Ga. Agr. Expt. Sta. Bul., N.S. 41, 22 p., illus.

(4) GRANT, W. H.
[n.d.] THE GEOLOGY OF HART COUNTY. Geological Survey Bul. No. 67, 75 p., illus.

(5) THORP, JAMES, AND SMITH, GUY D.
1949. HIGHER CATEGORIES OF SOIL CLASSIFICATION: ORDER, SUBORDER, AND GREAT SOIL GROUPS. Soil Sci. 67: 117–126.

(6) UNITED STATES DEPARTMENT OF AGRICULTURE.
1938. SOILS AND MEN. U.S. Dept. Agr. Ybk., 1232 p., illus.

(7) VAN BAVEL, C. H. M., AND CARREKER, JOHN R.
1957. AGRICULTURAL DROUGHT IN GEORGIA. Ga. Agr. Expt. Sta. Tech. Bul., N.S. 15, 41 p., illus.

(8) WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS.
1953. THE UNIFIED SOIL CLASSIFICATION SYSTEM. Tech. Memo. No. 3-357, 2 v. and app., 44 p., illus.

Glossary

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

Available moisture capacity. The amount of moisture held in a soil and available to roots of plants. It is approximately the amount of moisture held at tensions of between one-third atmosphere and 15 atmospheres.

Bedrock. The solid rock underlying soils and other earthy surface formations.

Bottom land. A flood plain.

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

Colluvium. Soil material and rock fragments moved by soil creep, by slides, or by local wash and deposited at the base of steep slopes.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are *loose, friable, firm, plastic, sticky, hard, soft,* and *cemented.*

Contour farming. Plowing, planting, cultivating, and harvesting on the contour, or at right angles to the natural direction of slope.

Cover crop. A close-growing crop grown primarily for the purpose of protecting and improving the soil between regular crops. Also, a protective crop grown between trees in orchards.

Cropland terrace. A ridge, 10 to 20 inches high and 15 to 30 feet wide, with gently sloping sides, a rounded crown, and a shallow channel along the upper side, constructed to control erosion by diverting surface runoff across the slope instead of permitting it to flow down the slope. It may grade toward one end or both ends. Cultivated crops can be grown on a cropland terrace.

Diversion terrace. A channel that has a supporting ridge on the lower side. It is constructed across the slope for the purpose of intercepting runoff and minimizing erosion or of preventing excess runoff from flowing onto lower lying areas.

Drainage terrace. A terrace having a relatively deep channel and low ridge, constructed across the slope primarily for drainage. It may be either a diversion terrace or a field terrace.

Erosion. The wearing away of the land surface by wind, running water, and other geological agents. Terms used in this report to indicate the extent of erosion are as follows:

Slightly eroded indicates that a soil has lost less than 25 percent of its original surface layer, and that it may have a few very shallow gullies.

Moderately eroded indicates that a soil has lost 25 to 75 percent of its original surface layer, and that it has a few shallow gullies and scattered gullies (more than 100 feet apart) too deep to be crossed with farm machinery.

Severely eroded indicates that a soil has lost more than 75 percent of its original surface layer and as much as 25 percent of its subsoil, and that it has a few shallow gullies and scattered gullies (more than 100 feet apart) too deep to be crossed with farm machinery.

Very severely eroded indicates that a soil has lost all its original surface layer and from 25 to 75 percent of its original subsoil, and that it has a few shallow gullies and scattered gullies (more than 100 feet apart) too deep to be crossed with farm machinery.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. Nearly level land occupying the bottom of the valley of a stream and subject to flooding unless protected artificially.

Galled spots. Small areas that are bare of vegetation because erosion has removed the soil.

Gravel. A mass of rounded or angular rock fragments one-fourth inch to 3 inches in diameter.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. Terms used in this report to indicate the relative position of the several soil horizons in the soil profile are as follows:

A Horizon. The surface horizon of a mineral soil having maximum biological activity, or eluviation (removal of materials dissolved or suspended in water), or both.

B Horizon. A soil horizon, usually beneath an A horizon, or surface soil, in which (1) clay, iron, or aluminum, with accessory organic matter, have accumulated; (2) the structure is blocky or prismatic; or (3) the soil has some combination of these features. In soils that have distinct profiles, the B horizon is roughly equivalent to the general term "subsoil."

C Horizon. The unconsolidated rock material in the lower part of the soil profile, like that from which the upper horizons (or at least a part of the B horizon) have developed.

Internal drainage. The downward movement of water through the soil profile. The rate of movement is affected by the texture of the surface layer and subsoil and by the height of the ground water table, either permanent or perched. Relative terms for expressing internal drainage are *very slow, slow, medium, rapid, very rapid.*

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

Nutrients, plant. The elements taken in by plants that are essential to their growth and are used by them in the elaboration of food and tissue. These elements are obtained from the air, from water, and from fertilizer ingredients.

Parent material, soil. The weathered rock or partly weathered soil material from which a soil has formed; the C horizon.

Permeability, soil. The quality of a soil that enables water or air to move through it. Terms used to describe permeability are *very slow, slow, moderately slow, moderate, moderately rapid, rapid, and very rapid.*

Phase, soil. A subdivision of a soil type, series, or other unit in the soil classification system, made because of differences that affect management but not classification. A soil type, for example, may be divided into phases because of differences in slope, stoniness, thickness, or some other characteristic that affects management.

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

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values or in words, as follows:

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

Relief. Elevations or inequalities of the land surface, considered collectively.

Sand. As a soil separate, individual rock or mineral fragments 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz, but they may be of any mineral composition. As a soil textural class, soil that is 85 percent or more sand and not more than 10 percent clay.

Series, soil. A group of soils developed from a particular type of parent material and having genetic horizons that, except for texture of the surface layer, are similar in differentiating characteristics and in arrangement in the profile.

Silt. As a soil separate, individual mineral particles 0.002 millimeter to 0.05 millimeter in diameter. As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Slope. The incline of the surface of a soil. It is usually expressed as a percentage, that is, as the number of feet of fall per 100 feet of horizontal distance.

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

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. Structure is classified by grade, class, and type.

Grade. Distinctness of aggregation. It expresses the differential between cohesion within aggregates and adhesion between aggregates. Terms: *Structureless* (*single grain* or *massive*), *weak, moderate,* and *strong.*

Class. Size of aggregates. Terms: *Very fine,* or *very thin; fine* or *thin; medium; coarse* or *thick;* and *very coarse* or *very thick.*

Type. Shape and arrangement of individual natural soil aggregates. Terms: *platy, prismatic, columnar, blocky, subangular blocky, granular,* and *crumb.* (Example of soil-structure grade, class, and type: moderate, coarse, subangular blocky.)

Subsoil. Technically, the B horizon of a soil with a distinct profile; commonly, that part of the profile below plow depth.

Substratum. Any layer lying beneath the solum, or true soil; the C or D horizon.

Surface runoff. The removal of water by flow over the surface of the soil. The amount and rapidity of surface runoff are affected by the texture, structure, and porosity of the surface layer; by the vegetative covering; by the prevailing climate; and by the slope. The rate of surface runoff is expressed as follows: *very rapid, rapid, medium, slow, very slow,* and *ponded.*

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

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

Texture, soil. The relative proportions of individual soil grains of the various size groups in a mass of soil; specifically, the proportions of sand, silt, and clay. (See Sand, Silt, and Clay.)

Tilth, soil. The physical properties of the soil that affect the ease with which it can be cultivated or that affect its suitability for crops; implies the presence or absence of favorable soil structure.

Topsoil. Presumably fertile soil or soil material, rich in organic matter, that is used to topdress roadbanks, parks, gardens, and lawns.

Type, soil. A subdivision of the soil series based on differences in the texture of the surface layer.

Understory. A layer of foliage in a forest below the level of the main canopy; also, the trees forming such a layer.

Upland (geologic). Land consisting of material unworked by water in recent geologic time and ordinarily lying at a higher elevation than flood plains, or stream terraces.

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

GUIDE TO MAPPING UNITS

[See table 4, p. 16, for estimated crop yields; see table 10, p. 22, for estimated woodland yields; see table 11, p. 26, for the suitability of plants to soils and as food for wildlife; see table 12, p. 32, for a brief description of soils and their estimated properties significant to engineering; see table 13, p. 38, for interpretations of engineering properties of the soils; and for the approximate acreage and proportionate extent of each soil, see table 15, p. 44]

			Capability unit		*Woodland suitability group*		*Wildlife suitability group*	
Symbol	*Mapping unit*	*Page*	*Symbol*	*Page*	*Number*	*Page*	*Number*	*Page*
AkB	Altavista fine sandy loam, 2 to 6 percent slopes	45	IIe–2	7	3	22	1	25
Alm	Alluvial land	37	IIw–2	8	1	22	6	29
AmB	Appling sandy loam, 2 to 6 percent slopes	45	IIe–2	7	2	22	1	25
AmB2	Appling sandy loam, 2 to 6 percent slopes, eroded	45	IIe–2	7	2	22	1	25
AmC2	Appling sandy loam, 6 to 10 percent slopes, eroded	45	IIIe–2	9	2	22	1	25
AnB3	Appling sandy clay loam, 2 to 6 percent slopes, severely eroded	45	IIIe–2	9	4	23	3	28
AnC3	Appling sandy clay loam, 6 to 10 percent slopes, severely eroded	46	IVe–1	12	4	23	3	28
AnD3	Appling sandy clay loam, 10 to 15 percent slopes, severely eroded	46	VIe–2	13	4	23	4	28
AoB	Appling loamy coarse sand, thin solum, 2 to 6 percent slopes	46	IIe–2	7	5	24	1	25
AoC	Appling loamy coarse sand, thin solum, 6 to 10 percent slopes	46	IIIe–2	9	5	24	1	25
Avp	Alluvial land, wet	37	IIIw–2	10	9	24	8	29
Bfs	Buncombe loamy sand	46	IIIs–1	12	1	22	----	----
Cfs	Chewacla soils	48	IIIw–2	10	9	24	7	29
Cga	Congaree sandy loam, local alluvium	50	I–1	7	1	22	6	29
CfB	Colfax sandy loam, 2 to 6 percent slopes	48	IIIw–3	11	6	24	7	29
Cos	Congaree soils	50	IIw–2	8	1	22	6	29
CYB	Cecil sandy loam, 2 to 6 percent slopes	47	IIe–1	7	2	22	1	25
CYB2	Cecil sandy loam, 2 to 6 percent slopes, eroded	47	IIe–1	7	2	22	1	25
CYC2	Cecil sandy loam, 6 to 10 percent slopes, eroded	47	IIIe–1	9	2	22	1	25
CYE2	Cecil sandy loam, 10 to 25 percent slopes, eroded	47	VIe–2	13	2	22	2	25
CZB3	Cecil sandy clay loam, 2 to 6 percent slopes, severely eroded	47	IIIe–1	9	4	23	3	28
CZC3	Cecil sandy clay loam, 6 to 10 percent slopes, severely eroded	47	IVe–1	12	4	23	3	28
CZD3	Cecil sandy clay loam, 10 to 15 percent slopes, severely eroded	48	VIe–2	13	4	23	4	28
CZE3	Cecil sandy clay loam, 15 to 25 percent slopes, severely eroded	48	VIIe–1	13	4	23	4	28
DoA	Durham loamy coarse sand, thin solum, 0 to 2 percent slopes	50	IIs–1	8	5	24	1	25
DoB	Durham loamy coarse sand, thin solum, 2 to 6 percent slopes	50	IIe–2	7	5	24	1	25
GhB2	Grover sandy loam, 2 to 6 percent slopes, eroded	51	IIe–2	7	2	22	1	25
GhC2	Grover sandy loam, 6 to 10 percent slopes, eroded	51	IIIe–2	9	2	22	1	25
Gul	Gullied land	51	VIIe–3	14	----	----	4	28
Lcn	Local alluvial land, wet	53	Vw–1	13	7	24	8	29
LeB3	Lloyd clay loam, 2 to 6 percent slopes, severely eroded	52	IIIe–1	9	4	23	3	28
LeC3	Lloyd clay loam, 6 to 10 percent slopes, severely eroded	52	IVe–1	12	4	23	3	28
LeE3	Lloyd clay loam, 10 to 25 percent slopes, severely eroded	53	VIe–2	13	4	23	4	28
LjD	Louisa fine sandy loam, 6 to 15 percent slopes	53	VIe–3	13	8	24	5	28
LjE	Louisa fine sandy loam, 15 to 25 percent slopes	53	VIIe–2	14	8	24	5	28
LnD2	Louisburg sandy loam, 6 to 15 percent slopes, eroded	54	VIe–3	13	5	24	5	28
LnE2	Louisburg sandy loam, 15 to 25 percent slopes, eroded	54	VIIe–2	14	5	24	5	28
LyB2	Lloyd soils, 2 to 6 percent slopes, eroded	51	IIe–1	7	2	22	1	25
LyC2	Lloyd soils, 6 to 10 percent slopes, eroded	52	IIIe–1	9	2	22	1	25
MDB2	Madison gravelly sandy loam, thin solum, 2 to 6 percent slopes, eroded.	55	IIe–1	7	2	22	1	25
MDC2	Madison gravelly sandy loam, thin solum, 6 to 10 percent slopes, eroded.	55	IIIe–1	9	2	22	1	25
MDD2	Madison gravelly sandy loam, thin solum, 10 to 15 percent slopes, eroded.	55	IVe–1	12	2	22	2	25
MDE2	Madison gravelly sandy loam, thin solum, 15 to 25 percent slopes, eroded.	55	VIe–2	13	2	22	2	25
MgB	Madison sandy loam, 2 to 6 percent slopes	54	IIe–1	7	2	22	1	25
MgB2	Madison sandy loam, 2 to 6 percent slopes, eroded	54	IIe–1	7	2	22	1	25
MgC2	Madison sandy loam, 6 to 10 percent slopes, eroded	54	IIIe–1	9	2	22	1	25
MgD2	Madison sandy loam, 10 to 15 percent slopes, eroded	55	IVe–1	12	2	22	2	25
MgE2	Madison sandy loam, 15 to 25 percent slopes, eroded	55	VIe–2	13	2	22	2	25
MlB3	Madison sandy clay loam, 2 to 6 percent slopes, severely eroded	55	IIIe–1	9	4	23	3	28
MlC3	Madison sandy clay loam, 6 to 10 percent slopes, severely eroded	55	IVe–1	12	4	23	3	28
MlD3	Madison sandy clay loam, 10 to 15 percent slopes, severely eroded	56	VIe–2	13	4	23	4	28
MlE3	Madison sandy clay loam, 15 to 25 percent slopes, severely eroded	56	VIIe–1	13	4	23	4	28
Mpd	Mine pits and dumps	56	VIIIs–1	15				
Roc	Rock land	56	VIIIs–1	15				
Wed	Wehadkee soils	56	IVw–1	13	9	24	8	29
WgB2	Wickham fine sandy loam, 2 to 6 percent slopes, eroded	57	IIe–1	7	3	22	1	25
WhC3	Wickham clay loam, 6 to 10 percent slopes, severely eroded	57	IVe–I	12	4	23	3	28

○

CORRECTION SHEET

Soil Survey of Hart County, Georgia

Page 53, last paragraph on page, should read as follows:

The Louisburg series consists of somewhat excessively drained, strongly acid soils on uplands. The slope range is 6 to 25 percent. The parent material was derived from granite and mica gneiss. The natural vegetation consists of oak, hickory, sweetgum, and pine.

NRCS Accessibility Statement

This document is not accessible by screen-reader software. 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 1-800-457-3642 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 U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.