United States Department of Agriculture

Natural Resources Conservation Service

in cooperation with Tennessee Agricultural Experiment Station, Tennessee Department of Agriculture, Carter County Board of County Commissioners, and United States Department of Agriculture, Forest Service

Soil Survey of Carter County, Tennessee

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

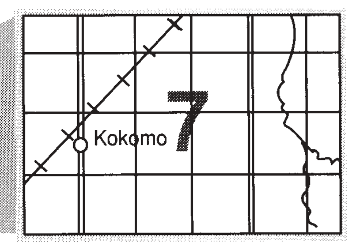
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

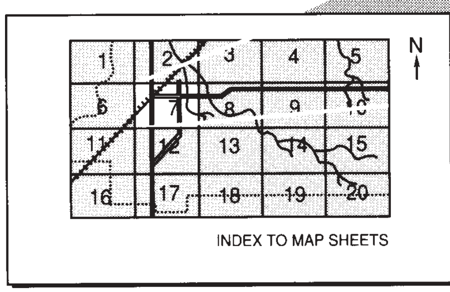
To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

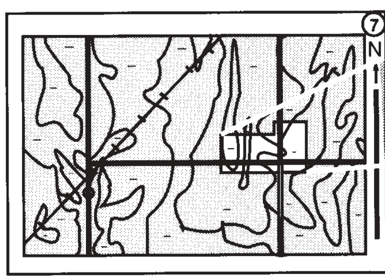
The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



MAP SHEET



INDEX TO MAP SHEETS



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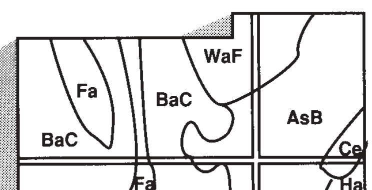

AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the agricultural experiment stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1990. Soil names and descriptions were approved in 2000. Unless otherwise indicated, statements in this publication refer to the conditions in the survey area in 1991. This survey was made cooperatively by the Natural Resources Conservation Service, the Tennessee Agricultural Experiment Station, the Tennessee Department of Agriculture, the Carter County Board of County Commissioners, and the United States Department of Agriculture, Forest Service. The survey is part of the technical assistance furnished to the Carter County Soil Conservation District. The Carter County Board of County Commissioners and the Tennessee Department of Agriculture provided financial assistance for the survey.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is http://www.nrcs.usda.gov.

Contents

Issued 2004

Foreword

This soil survey contains information that affects land use planning in Carter County. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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State Conservationist
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Soil Survey of
Carter County, Tennessee

By Nathan T. Hartgrove, Natural Resources Conservation Service

Fieldwork by Jack D. Colflesh and Nathan T. Hartgrove, Natural Resources Conservation Service, and A. Lea Mashburn, Carter County

United States Department of Agriculture, Natural Resources Conservation Service
in cooperation with
Tennessee Agricultural Experiment Station, Tennessee Department of Agriculture, Carter County Board of County Commissioners, and United States Department of Agriculture, Forest Service

Carter County is in the northeastern part of Tennessee (fig. 1). It is bordered on the north by Sullivan County, on the southwest by Unicoi County, on the west by Washington County, on the east by Johnson County, and on the south by Avery and Mitchell Counties, North Carolina. Elizabethton, the county seat, is located in the central part of the county. In 1990, according to the Tennessee Department of Economic and Community Development, the population of the county was 51,500.

Figure 1.—Location of Carter County in Tennessee.

Carter County is irregularly shaped, measuring about 21 miles from east to west and 19 miles from north to south. It covers about 340 square miles, or about 222,500 acres. About 217,900 acres are land, and about 4,600 acres are covered by water. The Watauga River and Watauga Lake divide the county from north to south.

Carter County is in the Southern Appalachian Ridges and Valleys and Blue Ridge Major Land Resource Areas (MLRAs) *(6)*. The soils formed under forest vegetation and are typically light colored. In the Blue Ridge, soils are shallow to very deep, over both sedimentary rocks (sandstone, shale, and siltstone) and crystalline igneous and metamorphic rocks (granite, gneiss, and schist). In the Ridge and Valleys, the soils are shallow to very deep and formed mainly over limestone and shale.

The crest of the Unaka Mountains (Blue Ridge MLRA) forms the Tennessee-North Carolina State line. These mountains range in elevation from 2,500 to about 6,300 feet. They have numerous westward-projecting ridges dissected by steep, narrow valleys. Different rates of weathering in the various rock types and extensive folding and faulting have created a highly dissected landscape. Geologic erosion of the softer rock strata has formed many valleys and coves that have subsequently filled with soil and rock materials washed from surrounding mountain ridges.

The Ridge and Valleys MLRA is dissected lowland underlain by weatherable rock types that have been faulted and folded. These rocks are far less resistant to weathering than those in the high mountains, and thus the valleys are at elevations markedly lower than the surrounding mountains.

The Watauga River and its tributaries drain Carter County. The main tributary streams are the Elk and Doe Rivers and Laurel Fork, Stony, Little Stony, Hampton, and Roaring Creeks.

This soil survey updates the survey of Carter County published in 1953 *(3)*. It provides additional information and has larger maps, which show the soils in greater detail.

General Nature of the County

This section gives general information about Carter County. It describes history and settlement, industry, transportation, natural resources, and climate.

History and Settlement

The survey area was originally inhabited by the Cherokee Indians. Early records suggest that James Robertson, Teeter Nave, and Andrew Taylor made the first permanent white settlement in Watauga Valley in 1771, near what is now Elizabethton. Michael Hyder made other early settlements between 1771 and 1774 at what is now Gap Creek. Carter County was organized in 1796. In 1799, the site for Elizabethton, the county seat, was granted and the first courthouse was built.

Many of early settlers came from North Carolina and Virginia. Some were veterans of the American Revolution who had been given land grants. Others were new immigrants from Europe, mainly Scotch-Irish and English and some Welsh and French.

Elizabethton was the main trade center for Carter County in the county's early history, and it remains so today. Other urban centers in the county are the Watauga, Hampton, and Roan Mountain communities.

Industry

Industries in Carter County include the manufacture of textiles, paper products, wire products, gaskets, dying and finishing fabric, corrugated containers, aluminum pipe and tubing, electrostatic precipitators, nuclear and chemical containers, chemicals, fiber, plastic, metal works, and furniture. More than 30 industrial firms operate in the county. According to the Tennessee Department of Economic and Community Development, these firms employ about 13 percent of the non-agricultural population. Industrial centers in adjoining Sullivan and Washington Counties also employ a significant number of the residents of Carter County.

The housing industry has been active in recent years due to population growth. Residential areas have developed all over the county. Most residential units are single-family dwellings. In recent years, however, the number of existing multiple-family units has been on the rise. Much of the residential and urban development in the county is occurring either on prime farmland or on soils that are favorable for agricultural uses.

Transportation

Carter County has an excellent network of State and local highways and roads. The main flow of traffic to and from adjoining counties is on two- and four-lane State and interstate highways. All major highways and most local streets and roads are paved, improved roads. The Tennessee Railway, CSX, and Norfolk and Southern Railways also serve Carter County.

The Tri-Cities Regional Airport, located 20 miles north of Elizabethton near Blountville, serves Carter County. Car rentals and taxi services are available. Private and charter air services are also available through a local municipal and commercial aviation service in Elizabethton.

Natural Resources

Carter County has an abundant supply of limestone, timber, and fresh water. Tree production is a major enterprise in the Cherokee National Forest as well as in other parts of the Blue Ridge section and in parts of the valley not suited to agriculture. The primary trees used in commercial production are oak, yellow-poplar, hickory, and beech.

The county has one limestone quarry that produces gravel and lime products. It also has one sand mine.

Carter County has a good supply of fresh water. Streams that flow year-round are common. The major areas of impounded water in the county are the Watauga, Wilbur, and Ripshin Reservoirs.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Erwin, Tennessee, in the period 1979 to 1988. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In the winter, the average temperature is 36 degrees F and the average daily minimum temperature is 25 degrees. The lowest temperature on record, which occurred on January 21, 1985, is -20 degrees. In summer, the average temperature is 73 degrees and the average daily maximum temperature is 85 degrees. The highest recorded temperature, which occurred at Erwin on August 21, 1983, is 101 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 43 inches. Of this, about 25 inches, or 60 percent, usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 3.68 inches on May 7, 1984. Thunderstorms occur on about 47 days each year, and most occur between June and August.

The average relative humidity in mid-afternoon is about 60 percent. Humidity is higher at night and the average at dawn is about 85 percent. The sun shines 60 percent of the time possible in summer and 45 percent in winter. The prevailing wind is from the northeast. Average windspeed is highest, 9 miles per hour, in spring.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted color, texture, size, and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict that a given soil will have a high water table within certain depths in most years. However, they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in some adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

General Soil Map Units

The general soil map shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

1. Ditney-Unicoi-Cataska

Shallow and moderately deep, steep to extremely steep, well drained to excessively drained soils that formed in residuum from metasandstone, quartzite, and siltstone

Setting

Landscape: Mountains
Slope range: 20 to 80 percent

Composition

Percent of the survey area: 25
Ditney soils—32 percent
Unicoi soils—27 percent
Cataska soils—14 percent
Minor soils—27 percent

Soil Properties and Qualities

Ditney

Depth class: Moderately deep
Drainage class: Well drained
Landscape position: Crests, shoulders, and side slopes
Parent material: Residuum
Typical texture of surface layer: Sandy loam
Slope: Steep to extremely steep

Unicoi

Depth class: Shallow
Drainage class: Somewhat excessively drained
Landscape position: Backslopes and shoulders
Parent material: Residuum
Typical texture of surface layer: Cobbly sandy loam
Slope: Extremely steep

Cataska

Depth class: Shallow
Drainage class: Excessively drained
Landscape position: Crests, shoulders, and side slopes
Parent material: Residuum
Typical texture of surface layer: Channery silt loam
Slope: Very steep and extremely steep

Minor Soils

- Maymead soils that formed in very deep, loamy colluvium; in coves
- Keener soils that formed in very deep, loamy colluvium; in coves and on footslopes
- Northcove soils that formed in very deep, cobbly or stony colluvium; in coves

Use and Management

Land use: Most areas are in woodland consisting of mixed hardwoods, eastern white pine, or Virginia pine
Primary limiting features: Depth to bedrock and the slope in most areas

2. Keener-Lonon

Very deep, sloping to very steep, well drained soils that formed in colluvium weathered from metasedimentary rocks

Setting

Landscape: Mountain foothills and coves
Slope range: 5 to 50 percent

Composition

Percent of the survey area: 6
Keener soils—46 percent
Lonon soils—43 percent
Minor soils—11 percent

Soil Properties and Qualities

Keener

Depth class: Very deep
Drainage class: Well drained
Landscape position: Fans, footslopes, benches, and coves
Parent material: Colluvium
Typical texture of surface layer: Loam
Slope: Sloping to very steep

Lonon

Depth class: Very deep
Drainage class: Well drained
Landscape position: Colluvial fans, footslopes, and benches
Parent material: Colluvium
Typical texture of surface layer: Loam
Slope: Sloping to steep

Minor Soils

- Maymead soils that formed in very deep, loamy colluvium; in coves
- Northcove soils that formed in very deep, cobbly or stony colluvium; in coves
- Potomac soils that formed in very deep, sandy and cobbly alluvium; on flood plains

Use and Management

Land use: Most areas are in mixed woodland; many of the less sloping areas are cleared for crops, hay, or pasture
Primary limiting features: Slope in most areas is the only significant limitation

3. Unison-Colvard-Shady

Very deep, nearly level to sloping, well drained soils that formed in alluvium derived primarily from metasedimentary rocks

Setting

Landscape: Intermountain valleys
Slope range: 0 to 12 percent

Composition

Percent of the survey area: 6
Unison soils—32 percent
Colvard soils—28 percent
Shady soils—16 percent
Minor soils—24 percent

Soil Properties and Qualities

Unison

Depth class: Very deep
Drainage class: Well drained
Landscape position: Stream terraces and footslopes
Parent material: Alluvium
Typical texture of surface layer: Loam
Slope: Nearly level to sloping

Colvard

Depth class: Very deep
Drainage class: Well drained
Landscape position: Flood plains
Parent material: Alluvium
Typical texture of surface layer: Fine sandy loam
Slope: Nearly level

Shady

Depth class: Very deep
Drainage class: Well drained
Landscape position: Low stream terraces
Parent material: Alluvium
Typical texture of surface layer: Loam
Slope: Nearly level and gently sloping

Minor Soils

- Lonon soils that formed in very deep, loamy colluvium; on fans and footslopes
- Braxton soils that formed in very deep, clayey residuum; on small intervening limestone ridges
- Pettyjon soils that formed in very deep alluvium that has almost no rock fragments; on flood plains
- Bloomingdale soils that formed in very deep, poorly drained, clayey alluvium; on flood plains

Use and Management

Land use: Most areas are cleared and used for crops, hay, pasture, or homesites
Primary limiting features: Flooding in areas of the Colvard and Shady soils and slope in some areas of the Unison soils

4. Chestnut-Tate-Greenlee

Moderately deep and very deep, gently sloping to extremely steep, well drained soils that formed in residuum and colluvium from crystalline rocks, such as granite, gneiss, and schist

Setting

Landscape: Mountains
Slope range: 2 to 95 percent

Composition

Percent of the survey area: 30
Chestnut soils—36 percent
Tate soils—21 percent
Greenlee soils—10 percent
Minor soils—33 percent

Soil Properties and Qualities

Chestnut

Depth class: Moderately deep
Drainage class: Well drained
Landscape position: Crests, shoulders, and side slopes
Parent material: Residuum
Typical texture of surface layer: Loam
Slope: Moderately steep to extremely steep

Tate

Depth class: Very deep
Drainage class: Well drained
Landscape position: Coves, footslopes, and benches
Parent material: Colluvium
Typical texture of surface layer: Stony loam
Slope: Gently sloping to extremely steep

Greenlee

Depth class: Very deep
Drainage class: Well drained
Landscape position: Coves, benches, and footslopes
Parent material: Colluvium
Typical texture of surface layer: Very cobbly loam
Slope: Steep and very steep

Minor Soils

- Ashe soils that formed in moderately deep residuum over hard bedrock
- Edneyville soils that formed in very deep, loamy residuum over weathered bedrock
- Cleveland soils that formed in shallow residuum over hard bedrock
- Tusquitee soils that formed in very deep, loamy colluvium; in coves

Use and Management

Land use: Most areas are in woodland consisting of mixed hardwoods, eastern white pine, or Virginia pine
Primary limiting features: Depth to bedrock in areas of the Chestnut soils and the slope in most areas

5. Porters-Tusquitee-Unaka

Moderately deep to very deep, moderately steep to extremely steep, well drained soils that formed in residuum and colluvium from crystalline rocks, such as granite, gneiss, or schist

Setting

Landscape: Mountains
Slope range: 15 to 80 percent

Composition

Percent of the survey area: 9
Porters soils—38 percent
Tusquitee soils—26 percent
Unaka soils—19 percent
Minor soils—17 percent

Soil Properties and Qualities

Porters

Depth class: Deep
Drainage class: Well drained
Landscape position: Crests, shoulders, and side slopes
Parent material: Residuum
Typical texture of surface layer: Gravelly loam
Slope: Moderately steep to extremely steep

Tusquitee

Depth class: Very deep
Drainage class: Well drained
Landscape position: Coves, benches, and footslopes
Parent material: Colluvium
Typical texture of surface layer: Loam
Slope: Steep and very steep

Unaka

Depth class: Moderately deep
Drainage class: Well drained
Landscape position: Crests, shoulders, and side slopes
Parent material: Residuum
Typical texture of surface layer: Loam
Slope: Moderately steep to extremely steep

Minor Soils

- Tate soils that formed in very deep, loamy colluvium; in coves
- Plott soils that formed in very deep, loamy residuum
- Spivey soils that formed in very deep, cobbly, stony, or bouldery colluvium; in coves

Use and Management

Land use: Most areas are in woodland consisting of mixed hardwoods
Primary limiting features: Depth to bedrock in areas of the Unaka soils and slope in most areas

6. Burton-Wayah-Balsam

Shallow, moderately deep, and very deep, sloping to extremely steep, well drained soils that formed in residuum and colluvium derived from crystalline rocks, such as granite, gneiss, or schist

Setting

Landscape: High mountains
Slope range: 8 to 95 percent

Composition

Percent of the survey area: 2
Burton soils—50 percent
Wayah soils—27 percent
Balsam soils—14 percent
Minor soils—9 percent

Soil Properties and Qualities

Burton

Depth class: Moderately deep
Drainage class: Well drained
Landscape position: Crests, shoulders, and side slopes
Parent material: Residuum
Typical texture of surface layer: Loam
Slope: Sloping to extremely steep

Wayah

Depth class: Shallow
Drainage class: Well drained
Landscape position: Crests, shoulders, and side slopes
Parent material: Residuum
Typical texture of surface layer: Loam
Slope: Sloping to extremely steep

Balsam

Depth class: Very deep
Drainage class: Well drained
Landscape position: Coves
Parent material: Colluvium
Typical texture of surface layer: Very cobbly loam
Slope: Steep and very steep

Minor Soils

- Craggey soils that formed in shallow, loamy residuum

Use and Management

Land use: Most areas are in woodland consisting of Fraser fir and red spruce
Primary limiting features: High, frigid, exposed elevations and depth to bedrock in areas of the Burton soils; a high content of rock fragments in areas of the Balsam soils; and slope in most areas

7. Braxton-Calvin-Montevallo

Shallow, moderately deep, and very deep, sloping to extremely steep, well drained soils that formed in residuum from limestone and shale

Setting

Landscape: Limestone valleys
Slope range: 2 to 80 percent

Composition

Percent of the survey area: 22
Braxton soils—48 percent
Calvin soils—18 percent
Montevallo soils—12 percent
Minor soils—22 percent

Soil Properties and Qualities

Braxton

Depth class: Very deep
Drainage class: Well drained
Landscape position: Crests, shoulders, and side slopes
Parent material: Residuum
Typical texture of surface layer: Silt loam
Slope: Sloping to very steep

Calvin

Depth class: Moderately deep
Drainage class: Well drained
Landscape position: Ridgetops and side slopes
Parent material: Residuum
Typical texture of surface layer: Channery silt loam
Slope: Moderately steep to very steep

Montevallo

Depth class: Shallow

Drainage class: Well drained
Landscape position: Ridgetops, shoulders, and side slopes
Parent material: Residuum
Typical texture of surface layer: Channery silt loam
Slope: Sloping to extremely steep

Minor Soils

- Talbott soils that formed in moderately deep, clayey residuum
- Waynesboro soils that formed in very loamy alluvium; on old high stream terraces
- Areas of limestone rock outcrops
- Shady soils that formed in very deep, loamy alluvium; on low stream terraces
- Steadman soils that formed in very deep, moderately well drained, loamy alluvium; on flood plains

Use and Management

Land use: Many areas are cleared and used for crops, pasture, or hay; the steepest areas remain in woodland consisting mainly of mixed hardwoods
Primary limiting features: Slope in most areas, the clayey subsoil in areas of the Braxton soils, depth to bedrock in areas of the Calvin and Montevallo soils, and areas of rock outcrops

Detailed Soil Map Units

The map units delineated on the detailed maps represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the heading “Use and Management of the Soils.”

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

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, degree of erosion, and other characteristics that affect their use. Because of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates features that affect use or management. For example, Braxton silt loam, 5 to 12 percent slopes, is a phase of the Braxton series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Chestnut-Ashe complex, 30 to 50 percent slopes, very stony, is an example.

This survey includes *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. The Rock outcrop part of Unison-Rock outcrop complex, 5 to 12 percent slopes, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see “Contents”) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

BaF—Balsam very cobbly loam, windswept, 30 to 50 percent slopes, extremely stony

Setting

Landscape position: Coves at high elevations
Major uses: Woodland consisting primarily of Fraser fir

Typical Profile

Surface layer:
0 to 12 inches—very dark brown very cobbly loam

Subsurface layer:
12 to 22 inches—dark yellowish brown very cobbly loam

Subsoil:
22 to 48 inches—brown and dark yellowish brown very cobbly loam

Substratum:
48 to 60 inches—yellowish brown very cobbly fine sandy loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
- Burton soils, which have fewer rock fragments than the Balsam soil and have bedrock within a depth of 40 inches; on the higher shoulders and ridge crests
- Craggey soils, which have fewer rock fragments than the Balsam soil and have bedrock within a depth of 20 inches; on the higher shoulders and ridge crests

Similar inclusions:
- Spivey soils, which have a warmer temperature regime due to their lower elevations; in similar lower positions
- In some mapped areas of this unit, soils that contain fewer rock fragments in the profile
- In some areas where the soil surface is stonier or where rock slides or other occurrences have mechanically disturbed the surface layers, soils that have lighter colored surface layers

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
- Because of a severe hazard of erosion and an equipment limitation caused by the slope and rock content, crop production is impractical.

Pasture and hay

Suitability: Unsuited
Management concerns and measures:
- The slope and the rock fragments in the surface layer are severe limitations affecting the management of pasture and hayland.

Woodland

Suitability: Poorly suited
Management concerns and measures:
- The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
- Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
- Plant competition is a concern unless competing vegetation is controlled.
- Trees suitable for planting include red spruce and Fraser fir.

Urban development

Suitability: Poorly suited
Management concerns and measures:
- This soil is poorly suited to most urban uses because of the slope and the large stones in the soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

BbB—Bellamy loam, 2 to 5 percent slopes

Setting

Landscape position: Low stream terraces
Major uses: Most areas are cleared and used for pasture and hay; a few areas are in row crops

Typical Profile

Surface layer:
0 to 5 inches—dark yellowish brown loam

Subsurface layer:
5 to 10 inches—dark yellowish brown loam

Subsoil:
10 to 19 inches—brownish yellow loam
19 to 32 inches—brownish yellow loam that is brittle in 40 to 60 percent of the volume
32 to 41 inches—brownish yellow clay loam
41 to 54 inches—mottled light yellowish brown, gray, and yellowish red clay loam

Substratum:
54 to 72 inches—yellowish brown sandy clay loam

Soil Properties and Features

Permeability: Moderately slow
Available water capacity: High
High water table: Perched, at a depth of 1.5 to 3.0 feet from January to March
Drainage class: Moderately well drained
Flood hazard: None
Reaction: Very strongly acid to slightly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Areas of poorly drained Bloomingdale soils on adjacent flood plains
• Areas of Montevallo soils, which have a high content of rock fragments and have shale bedrock at a depth of less than 20 inches; on adjacent uplands

Similar inclusions:
• Areas of Steadman soils, which have less clay and more silt in the subsoil; on adjacent flood plains
• Small areas of soils that have less clay and more sand in the subsoil; in similar positions

Use and Management

Row crops and small grain

Suitability: Moderately suited
Management concerns and measures:
• Erosion is a moderate hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration rates, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• This soil has few limitations affecting pasture and hayland.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and sweetgum.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the wetness and the moderately slow permeability in the subsoil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 2e

Bd—Bloomingdale silty clay loam, occasionally flooded

Setting

Landscape position: Flood plains and flood plain depressions
Major uses: Most areas are cleared and in pasture or hay

Typical Profile

Surface layer:
0 to 6 inches—light olive brown silty clay loam

Subsoil:
6 to 40 inches—gray and light brownish gray silty clay

Substratum:
40 to 60 inches—gray clay

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: Apparent, at a depth of 0 to 12 inches from November to May
Drainage class: Poorly drained
Flood hazard: Occasional for brief duration from November to May
Reaction: Moderately acid to moderately alkaline
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Steadman soils, which are moderately well drained; on the higher flood plains
• Shady soils, which have less clay and more sand throughout than the Bloomingdale soil and are well drained; on adjacent low terraces

Similar inclusions:
• In some mapped areas of this unit, soils containing less clay and more sand throughout
• In some mapped areas of this unit, somewhat poorly drained soils

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• The flood hazard and the wetness in the root zone are the major limitations affecting crop production.
• The wetness delays planting or hinders harvesting operations in most years.

Pasture and hay

Suitability: Moderately suited
Management concerns and measures:
• Plant species that can tolerate wetness and flooding are best suited.
• Permitting grazing when the soil is saturated can cause compaction of the soil surface, which results in slower infiltration and loss of the stand.
• The wetness hinders early hay cutting operations in some years.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The flooding and wetness cause an equipment limitation during the wetter periods of the year.
• Seedling mortality due to flooding is a management concern.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include American sycamore and sweetgum.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The flooding and wetness are limitations that are extremely difficult to overcome.

Interpretive Group

Land capability classification: 3w

BkC—Braddock loam, 5 to 12 percent slopes

Setting

Landscape position: High terraces and adjacent footslopes and fans
Major uses: Many areas are in woodland; several areas are cleared and used mainly for hay and pasture

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown loam

Subsoil:
4 to 52 inches—yellowish red and red clay loam

Substratum:
52 to 62 inches—yellowish red silty clay loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to strongly acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Cataska soils, which have a high content of rock fragments and have bedrock at a depth of less than 20 inches; on adjacent uplands
• Ditney soils, which have bedrock at depths between 20 and 40 inches; on adjacent uplands

Similar inclusions:
• Keener soils, which have less clay, more sand, and

browner colors in the subsoil; in adjacent colluvial positions

Use and Management

Cropland

Suitability: Moderately suited
Management concerns and measures:
• Erosion is a moderate hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration rates, and maintain soil tilth.
• Regular crop rotation is necessary in most sloping areas.
• Terraces, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• This soil has few limitations affecting pasture and hayland.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes fertilization, weed control, and prevention of overgrazing.

Woodland

Suitability: Well suited
Management concerns and measures:
• Equipment tracks or tires can cause excessive rutting or miring during rainy periods, especially where the soil is already eroded, because of the clayey subsoil. Delaying the use of equipment until the soil is dry or using gravel or other material on roads is recommended.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Moderately suited
Management concerns and measures:
• The main limitations are the slope and the clayey subsoil.
• Specially designing structures and facilities can often overcome the soil limitations.

Interpretive Group

Land capability classification: 3e

BkD—Braddock loam, 12 to 20 percent slopes

Setting

Landscape position: High terraces and adjacent footslopes and fans
Major uses: Woodland in most areas; some small tracts are cleared and used for pasture

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown loam

Subsoil:
4 to 52 inches—yellowish red and red clay loam

Substratum:
52 to 62 inches—yellowish red silty clay loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to strongly acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Cataska soils, which have a high content of rock fragments and have bedrock at a depth of less than 20 inches; on adjacent uplands
• Ditney soils, which have bedrock at depths between 20 and 40 inches; on adjacent uplands

Similar inclusions:
• Keener soils, which have less clay, more sand, and browner colors in the subsoil; in adjacent colluvial positions

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Erosion is a severe hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, crop rotations, and the use of cover crops are important in controlling erosion and maintaining productivity when crops are grown.
• Contour strips, grassed waterways, field borders, and

filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Moderately suited
Management concerns and measures:
• Rockiness and the slope may limit the use of this soil for hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well-planned clipping and harvesting schedule are important management practices.
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on moderately steep pastures and hayland.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the types of large equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the clayey subsoil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 4e

BrB—Braxton silt loam, 2 to 5 percent slopes

Setting

Landscape position: Upland drainageways or toeslopes
Major uses: Crops, hay, or pasture in most areas

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 16 inches—yellowish red silty clay
16 to 62 inches—yellowish red clay

Soil Properties and Features

Permeability: Moderately slow
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Generally strongly acid or moderately acid; the horizon just above bedrock ranges to slightly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Talbott soils that have bedrock at a depth of less than 40 inches

Similar inclusions:
• Small areas of soils that have bedrock at a depth between 40 and 60 inches
• Areas of soils that have less clay and more sand in the subsoil

Use and Management

Cropland

Suitability: Well suited
Management concerns and measures:
• This soil is suited to most of the crops, grasses, and legumes that are adapted to the local climate.
• Terraces, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• This soil has few limitations affecting pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well-planned clipping and harvesting schedule are important management practices.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include shortleaf pine and eastern redcedar.

Urban development

Suitability: Moderately suited

Management concerns and measures:
• The main limitations are the clayey subsoil and moderately slow permeability.
• Specially designing structures and facilities can often overcome the soil limitations.

Interpretive Group

Land capability classification: 2e

BrC—Braxton silt loam, 5 to 12 percent slopes

Setting

Landscape position: Ridgetops, shoulders, and side slopes
Major uses: Crops, hay, or pasture in most areas

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 16 inches—yellowish red silty clay
16 to 62 inches—yellowish red clay

Soil Properties and Features

Permeability: Moderately slow
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Generally strongly acid or moderately acid; the horizon just above bedrock ranges to slightly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Talbott soils that have bedrock at a depth of less than 40 inches

Similar inclusions:
• Small areas of soils that have bedrock at a depth between 40 and 60 inches
• Areas of soils that have less clay and more sand in the subsoil

Use and Management

Cropland

Suitability: Moderately suited
Management concerns and measures:
• Erosion is a moderate hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration rates, and maintain soil tilth.
• Regular crop rotation is necessary in most sloping areas.
• Terraces, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• This soil has few limitations affecting pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well-planned clipping and harvesting schedule are important management practices.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include shortleaf pine and eastern redcedar.

Urban development

Suitability: Moderately suited
Management concerns and measures:
• The main limitations are the clayey subsoil and moderately slow permeability.
• Specially designing structures and facilities can often overcome the soil limitations.

Interpretive Group

Land capability classification: 3e

BrD2—Braxton silt loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: Ridge shoulders and side slopes
Major uses: Hay or pasture in most areas; crops in some small areas

Typical Profile

Surface layer:
0 to 4 inches—brown silt loam

Subsurface layer:
4 to 7 inches—brown silty clay loam

Subsoil:
7 to 16 inches—yellowish red silty clay
16 to 62 inches—yellowish red clay

Soil Properties and Features

Permeability: Moderately slow
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Generally strongly acid or moderately acid; the horizon just above bedrock ranges to slightly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Talbott soils that have bedrock at a depth of less than 40 inches

Similar inclusions:
• Small areas of soils that have bedrock at a depth between 40 and 60 inches
• Areas of soils that have less clay and more sand in the subsoil

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Erosion is a severe hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, crop rotations, and the use of cover crops are important in controlling erosion and maintaining productivity when crops are grown.
• Grassed waterways, field borders, and filter strips are needed to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Moderately suited
Management concerns and measures:
• The slope may limit the use of this soil for hayland.
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on moderately steep pastures and hayland.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include shortleaf pine and eastern redcedar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope, the clayey subsoil, and the moderately slow permeability. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 4e

BrE2—Braxton silt loam, 20 to 35 percent slopes, eroded

Setting

Landscape position: Side slopes of upland ridges
Major uses: Pasture or hay in most areas; woodland in some areas

Typical Profile

Surface layer:
0 to 4 inches—brown silt loam

Subsurface layer:
4 to 7 inches—brown silty clay loam

Subsoil:
7 to 16 inches—yellowish red silty clay
16 to 62 inches—yellowish red clay

Soil Properties and Features

Permeability: Moderately slow
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Generally strongly acid or moderately acid; the horizon just above bedrock ranges to slightly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Talbott soils that have bedrock at a depth of less than 40 inches

Similar inclusions:
• Small areas of soils that have bedrock at a depth between 40 and 60 inches
• Areas of soils that have less clay and more sand in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• The slope is a limitation affecting hayland.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include shortleaf pine and eastern redcedar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope, the clayey subsoil, and the moderately slow permeability. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

BrF2—Braxton silt loam, 35 to 50 percent slopes, eroded

Setting

Landscape position: Side slopes of upland ridges
Major uses: Commonly pasture; woodland in many areas

Typical Profile

Surface layer:
0 to 4 inches—brown silt loam

Subsurface layer:
4 to 7 inches—brown silty clay loam

Subsoil:
7 to 16 inches—yellowish red silty clay
16 to 62 inches—yellowish red clay

Soil Properties and Features

Permeability: Moderately slow
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Generally strongly acid or moderately acid; the horizon just above bedrock ranges to slightly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Talbott soils that have bedrock at a depth of less than 40 inches

Similar inclusions:
• Small areas of soils that have bedrock at a depth between 40 and 60 inches
• Areas of soils that have less clay and more sand in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Good pasture management is essential in controlling

erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include shortleaf pine and eastern redcedar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The slope and clayey subsoil are limitations that are extremely difficult to overcome.

Interpretive Group

Land capability classification: 7e

BsE—Brookshire silt loam, 20 to 35 percent slopes

Setting

Landscape position: North- and east-facing mountain coves
Major uses: Woodland, consisting of upland oaks and other hardwoods, in most areas

Typical Profile

Surface layer:
0 to 1 inch—forest litter of hardwood leaves and twigs
1 to 6 inches—very dark grayish brown silt loam
6 to 9 inches—dark yellowish brown silt loam

Subsoil:
9 to 53 inches—strong brown gravelly silt loam

Substratum:
53 to 65 inches—brownish yellow cobbly silt loam

Soil Properties and Features

Permeability: Moderately rapid or rapid
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Strongly acid or very strongly acid
Depth to bedrock: 40 to 70 inches

Inclusions

Contrasting inclusions:
• Small areas of soils that have bedrock at a depth of less than 40 inches
• Areas of soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Maymead soils that do not have a dark surface layer
• Areas of Shelocta soils that have more clay in the subsoil

Use and Management

Row crops and small grain

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation.
• The use of equipment can cause excessive rutting or miring when the soil is wet. Equipment use can be delayed until the soil is dry, and gravel or other suitable subgrade material can be added to the main roads.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there

would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

BtD2—Braxton-Talbott-Rock outcrop complex, 12 to 20 percent slopes, eroded

Setting

Landscape position: Upland ridgetops, shoulders, and side slopes
Major uses: Pasture in most areas

Composition

Braxton soil: Averaging about 40 percent of map units, but ranging between 30 and 50 percent of each mapped area
Talbott soil: Averaging about 30 percent of map units, but ranging between 25 and 40 percent of each mapped area
Rock outcrop: Averaging about 20 percent of map units, but ranging between 10 and 30 percent of each mapped area

Typical Profile

Braxton

Surface layer:
0 to 4 inches—brown silt loam

Subsurface layer:
4 to 7 inches—brown silty clay loam

Subsoil:
7 to 16 inches—yellowish red silty clay
16 to 62 inches—yellowish red clay

Talbott

Surface layer:
0 to 3 inches—dark brown silt loam

Subsoil:
3 to 28 inches—strong brown clay

Substratum:
28 inches—limestone bedrock

Rock outcrop

The limestone rock outcrops occur as individual rocks, ledges, or bluffs. Some loose stones or boulders also occur scattered on the soil surface in some areas.

Properties and Features of the Braxton and Talbott Soils

Permeability: Moderately slow
Available water capacity: Braxton—high; Talbott—low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Braxton—strongly acid or moderately acid; Talbott—strongly acid to slightly acid
Depth to bedrock: Braxton—more than 60 inches; Talbott—20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of soils that have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of soils that have bedrock at depths between 40 and 60 inches
• Areas of soils that have less clay and more sand in the subsoil

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the rock outcrops, crop production is impractical in this map unit.

Pasture and hay

Suitability for pasture: Moderately suited
Suitability for hay: Poorly suited
Management concerns and measures:
• In most areas, rock outcrops hinder or prevent the use of mowers, disks, and other equipment needed for hay cutting or pasture renovation.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation.
• The slope and rock outcrops limit the operation of equipment.
• Plant competition is a concern unless competing vegetation is controlled.

• Trees suitable for planting include shortleaf pine and eastern redcedar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope, the moderately slow permeability, and the depth to bedrock of the Talbott soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

BtE2—Braxton-Talbott-Rock outcrop complex, 20 to 35 percent slopes, eroded

Setting

Landscape position: Upland ridgetops, shoulders, and side slopes
Major uses: Pasture in most areas

Composition

Braxton soil: Averaging about 40 percent of map units, but ranging between 30 and 50 percent of each mapped area
Talbott soil: Averaging about 30 percent of map units, but ranging between 25 and 40 percent of each mapped area
Rock outcrop: Averaging about 20 percent of map units, but ranging between 10 and 30 percent of each mapped area

Typical Profile

Braxton

Surface layer:
0 to 4 inches—brown silt loam

Subsurface layer:
4 to 7 inches—brown silty clay loam

Subsoil:
7 to 16 inches—yellowish red silty clay
16 to 62 inches—yellowish red clay

Talbott

Surface layer:
0 to 3 inches—dark brown silt loam

Subsoil:
3 to 28 inches—strong brown clay

Substratum:
28 inches—limestone bedrock

Rock outcrop

Limestone rock outcrops occur as individual rocks, ledges, or bluffs. Some loose stones or boulders also occur scattered on the soil surface in some areas.

Properties and Features of the Braxton and Talbott Soils

Permeability: Moderately slow
Available water capacity: Braxton—high; Talbott—low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Braxton—strongly acid or moderately acid; Talbott—strongly acid to slightly acid
Depth to bedrock: Braxton—more than 60 inches; Talbott—20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of soils that have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of soils that have bedrock at depths between 40 and 60 inches
• Areas of soils that have less clay and more sand in the subsoil

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the rock outcrops, crop production is impractical in this map unit.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• In most areas, rock outcrops and the slope hinder or prevent the use of disks and other equipment needed for pasture renovation.
• Good pasture management is essential for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation.
• The slope and rock outcrops limit the safe operation of equipment and the types of equipment that may be used.
• Trees suitable for planting include shortleaf pine and eastern redcedar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope, the moderately slow permeability, and the depth to bedrock of the Talbott soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

BuD—Braxton-Urban land complex, 5 to 20 percent slopes

Setting

Landscape position: Ridgetops, shoulders, and side slopes that are commonly leveled, smoothed, or filled
Major uses: Residential and commercial areas

Composition

Braxton soil: Averaging about 50 percent of map units, but ranging between 40 and 60 percent of each mapped area
Urban land: Averaging about 40 percent of map units, but ranging between 30 and 50 percent of each mapped area

Typical Profile

Braxton

Surface layer:
0 to 4 inches—brown silt loam

Subsurface layer:
4 to 7 inches—brown silty clay loam

Subsoil:
7 to 16 inches—yellowish red silty clay
16 to 62 inches—yellowish red clay

Urban land

Urban land is mostly covered by streets, parking lots, buildings, and other structures common to urban areas.

Use and Management

Because areas of this map unit have been manipulated and disturbed by development and construction activities, onsite investigation is recommended before making land use decisions. Agriculture and woodland management are generally not practical in areas that are this intensively developed.

Interpretive Group

Land capability classification: None assigned

BxD—Burton-Craggey complex, windswept, 8 to 15 percent slopes, extremely bouldery

Setting

Landscape position: Mountain crests, shoulders, and side slopes at high elevations
Major uses: Woodland consisting mostly of Fraser fir

Composition

Burton soil: Averaging about 55 percent of map units, but ranging between 40 and 65 percent of each mapped area
Craggey soil: Averaging about 35 percent of map units, but ranging between 20 and 45 percent of each mapped area

Typical Profile

Burton

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 14 inches—black loam

Subsoil:
14 to 24 inches—dark yellowish brown loam

Substratum:
24 inches—hard gneiss bedrock

Craggey

Surface layer:
0 to 13 inches—black loam

Substratum:
13 inches—hard gneiss bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Burton—low or moderate; Craggey—very low or low
High water table: At a depth of more than 6 feet
Drainage class: Burton—well drained; Craggey—somewhat excessively drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: Burton—20 to 40 inches; Craggey—less than 20 inches

Inclusions

Contrasting inclusions:
• Areas of Balsam soils that have a high content of rock fragments and have bedrock at a depth of more than 60 inches
• Small areas of organic soil ranging from less than 10 to as much as 25 inches thick over bedrock

Similar inclusions:
• Small areas of soils that have a high content of rock fragments in the subsoil
• Areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland, pasture, and hay

Suitability: Unsuited
Management concerns and measures:
• Because areas of this map unit are so cold and droughty, agricultural production of any type is virtually prohibited.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• Because of the limited depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
• Because trees at high, frigid, exposed elevations are susceptible to severe wind and frost damage, productivity is substantially limited.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the depth to bedrock. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

BxE—Burton-Craggey complex, windswept, 15 to 35 percent slopes, extremely bouldery

Setting

Landscape position: Mountain crests, shoulders, and side slopes at high elevations
Major uses: Woodland consisting mostly of Fraser fir

Composition

Burton soil: Averaging about 55 percent of map units, but ranging between 40 and 65 percent of each mapped area
Craggey soil: Averaging about 35 percent of map units, but ranging between 20 and 45 percent of each mapped area

Typical Profile

Burton

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 14 inches—black loam

Subsoil:
14 to 24 inches—dark yellowish brown loam

Substratum:
24 inches—hard gneiss bedrock

Craggey

Surface layer:
0 to 13 inches—black loam

Substratum:
13 inches—hard gneiss bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Burton—low or moderate; Craggey—very low or low
High water table: At a depth of more than 6 feet
Drainage class: Burton—well drained; Craggey—somewhat excessively drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: Burton—20 to 40 inches; Craggey—10 to 20 inches

Inclusions

Contrasting inclusions:
- Areas of Balsam soils that have a high content of rock fragments and have bedrock at a depth of more than 60 inches
- Small areas of organic soil ranging from less than 10 to as much as 25 inches thick over bedrock

Similar inclusions:
- Small areas of soils that have a high content of rock fragments in the subsoil
- Areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland, pasture, and hay

Suitability: Unsuited
Management concerns and measures:
- Because areas of this map unit are so steep, cold, and droughty, agricultural production of any type is virtually prohibited.

Woodland

Suitability: Poorly suited
Management concerns and measures:
- Because of the limited depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
- The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
- Because trees at high, frigid, exposed elevations are susceptible to severe wind and frost damage, productivity is substantially limited.

Urban development

Suitability: Poorly suited
Management concerns and measures:
- The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

BzD—Burton-Wayah complex, windswept, 15 to 30 percent slopes, stony

Setting

Landscape position: Mountain crests, shoulders, and side slopes at high elevations
Major uses: Woodland consisting mostly of Fraser fir

Composition

Burton soil: Averaging about 60 percent of map units, but ranging between 55 and 65 percent of each mapped area
Wayah soil: Averaging about 35 percent of map units, but ranging between 20 and 45 percent of each mapped area

Typical Profile

Burton

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 14 inches—black loam

Subsoil:
14 to 24 inches—dark yellowish brown loam

Substratum:
24 inches—hard gneiss bedrock

Wayah

Surface layer:
0 to 1 inch—mostly decomposed forest litter
1 to 4 inches—very dark brown loam
4 to 16 inches—dark brown loam

Subsurface layer:
16 to 23 inches—strong brown loam

Subsoil:
23 to 32 inches—strong brown loam
32 to 49 inches—strong brown fine sandy loam

Substratum:
49 to 55 inches—strong brown fine sandy loam
55 to 65 inches—multicolored saprolite that crushes to fine sandy loam
65 inches—multicolored, partly consolidated, weathered bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Burton—low or moderate; Wayah—moderate
High water table: At a depth of more than 6 feet

Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: Burton—20 to 40 inches; Wayah—more than 60 inches

Inclusions

Contrasting inclusions:
• Areas of Craggey soils that have bedrock at a depth of less than 20 inches
• Small areas of organic soil ranging from less than 10 to as much as 25 inches thick over bedrock

Similar inclusions:
• Small areas of Balsam soils that have a high content of rock fragments in the subsoil
• Areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland, pasture, and hay

Suitability: Unsuited
Management concerns and measures:
• Because areas of this map unit are so steep, cold, and droughty, agricultural production of any type is virtually prohibited.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• Because of the depth to bedrock of the Burton soil, there is a windthrow hazard in established stands.
• Seedling mortality is a concern because of the cold, droughty climate of the map unit.
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Because trees at high, frigid, exposed elevations are susceptible to severe wind and frost damage, productivity is substantially limited.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the depth to bedrock of the Burton soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

BzE—Burton-Wayah complex, windswept, 30 to 50 percent slopes, stony

Setting

Landscape position: Shoulders and side slopes of mountain ridges at high elevations
Major uses: Woodland consisting mostly of Fraser fir

Composition

Burton soil: Averaging about 60 percent of map units, but ranging between 55 and 65 percent of each mapped area
Wayah soil: Averaging about 35 percent of map units, but ranging between 20 and 45 percent of each mapped area

Typical Profile

Burton

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 14 inches—black loam

Subsoil:
14 to 24 inches—dark yellowish brown loam

Substratum:
24 inches—hard gneiss bedrock

Wayah

Surface layer:
0 to 1 inch—mostly decomposed forest litter
1 to 4 inches—very dark brown loam
4 to 16 inches—dark brown loam

Subsurface layer:
16 to 23 inches—strong brown loam

Subsoil:
23 to 32 inches—strong brown loam
32 to 49 inches—strong brown fine sandy loam

Substratum:
49 to 55 inches—strong brown fine sandy loam
55 to 65 inches—multicolored saprolite that crushes to fine sandy loam
65 inches—multicolored, partly consolidated, weathered bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Burton—low or moderate; Wayah—moderate
High water table: At a depth of more than 6 feet

Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: Burton—20 to 40 inches; Wayah—more than 60 inches

Inclusions

Contrasting inclusions:
• Areas of Craggey soils that have bedrock at a depth of less than 20 inches
• Small areas of organic soil ranging from less than 10 to as much as 25 inches thick over bedrock

Similar inclusions:
• Small areas of Balsam soils that have a high content of rock fragments in the subsoil
• Areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland, pasture, and hay

Suitability: Unsuited
Management concerns and measures:
• Because areas of this map unit are so steep, cold, and droughty, agricultural production of any type is virtually prohibited.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• Because of the depth to bedrock of the Burton soil, there is a windthrow hazard in established stands.
• Seedling mortality is a concern because of the cold, droughty climate of the map unit.
• The slope causes an erosion hazard during harvesting and reforestation and limits the safe operation of equipment.
• Because trees at high, frigid, exposed elevations are susceptible to severe wind and frost damage, productivity is substantially limited.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the depth to bedrock of the Burton soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

BzF—Burton-Wayah complex, windswept, 50 to 95 percent slopes, stony

Setting

Landscape position: Shoulders and side slopes of mountain ridges at high elevations
Major uses: Woodland consisting mostly of Fraser fir

Composition

Burton soil: Averaging about 60 percent of map units, but ranging between 55 and 65 percent of each mapped area
Wayah soil: Averaging about 35 percent of map units, but ranging between 20 and 45 percent of each mapped area

Typical Profile

Burton

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 14 inches—black loam

Subsoil:
14 to 24 inches—dark yellowish brown loam

Substratum:
24 inches—hard gneiss bedrock

Wayah

Surface layer:
0 to 1 inch—mostly decomposed forest litter
1 to 4 inches—very dark brown loam
4 to 16 inches—dark brown loam

Subsurface layer:
16 to 23 inches—strong brown loam

Subsoil:
23 to 32 inches—strong brown loam
32 to 49 inches—strong brown fine sandy loam

Substratum:
49 to 55 inches—strong brown fine sandy loam
55 to 65 inches—multicolored saprolite that crushes to fine sandy loam
65 inches—multicolored, partly consolidated, weathered bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Burton—low or moderate; Wayah—moderate
High water table: At a depth of more than 6 feet

Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: Burton—20 to 40 inches; Wayah—more than 60 inches

Inclusions

Contrasting inclusions:
• Areas of Craggey soils that have bedrock at a depth of less than 20 inches
• Small areas of organic soil ranging from less than 10 to as much as 25 inches thick over bedrock

Similar inclusions:
• Small areas of Balsam soils that have a high content of rock fragments in the subsoil
• Areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland, pasture, and hay

Suitability: Unsuited
Management concerns and measures:
• Because areas of this map unit are so steep, cold, and droughty, agricultural production of any type is virtually prohibited.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• Because of the depth to bedrock of the Burton soil, there is a windthrow hazard in established stands.
• Seedling mortality is a concern because of the cold, droughty climate of the map unit.
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Because trees at high, frigid, exposed elevations are susceptible to severe wind and frost damage, productivity is substantially limited.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the depth to bedrock of the Burton soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

CaD—Calvin channery silt loam, 12 to 20 percent slopes

Setting

Landscape position: Ridgetops and shoulders
Major uses: Most areas are cleared and used for hay or pasture

Typical Profile

Surface layer:
0 to 6 inches—reddish brown channery silt loam

Subsoil:
6 to 15 inches—reddish brown channery silt loam
15 to 29 inches—reddish brown very channery loam

Substratum:
29 to 36 inches—dusky red very channery loam
36 inches—weathered shale bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of Montevallo soils that have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of soils that have fewer rock fragments and/or more clay in the subsoil

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting cultivated crops are the severe erosion hazard and the restricted available water capacity.

Pasture and hay

Suitability: Moderately suited
Management concerns and measures:
• The restricted available water capacity limits the use of this soil for hayland.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It

includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• The slope limits the operation of equipment in some areas.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine and Virginia pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 4e

CaE—Calvin channery silt loam, 20 to 35 percent slopes

Setting

Landscape position: Ridge shoulders and side slopes
Major uses: Most areas are cleared and used for hay or pasture

Typical Profile

Surface layer:
0 to 6 inches—reddish brown channery silt loam

Subsoil:
6 to 15 inches—reddish brown channery silt loam
15 to 29 inches—reddish brown very channery loam

Substratum:
29 to 36 inches—dusky red very channery loam
36 inches—weathered shale bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of Montevallo soils that have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of soils that have fewer rock fragments and/or more clay in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• The slope and the restricted available water capacity limit the use of this soil for hayland.
• Good pasture management is essential for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• The slope limits the operation of equipment in some areas.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine and Virginia pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

CaF—Calvin channery silt loam, 35 to 50 percent slopes

Setting

Landscape position: Side slopes of upland ridges
Major uses: Most areas are cleared and used for hay or pasture

Typical Profile

Surface layer:
0 to 6 inches—reddish brown channery silt loam

Subsoil:
6 to 15 inches—reddish brown channery silt loam
15 to 29 inches—reddish brown very channery loam

Substratum:
29 to 36 inches—dusky red very channery loam
36 inches—weathered shale bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of Montevallo soils that have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of soils that have fewer rock fragments and/or more clay in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of a moisture deficiency caused by the limited depth to bedrock and the equipment limitation on very steep slopes, the establishment and maintenance of hay or pasture plants is very difficult.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine and Virginia pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The depth to bedrock and the slope are limitations that are extremely difficult to overcome.

Interpretive Group

Land capability classification: 7e

CcF—Cataska channery silt loam, 35 to 50 percent slopes

Setting

Landscape position: Mountain ridges and side slopes
Major uses: Woodland, consisting of Virginia pine, upland oaks, and mixed hardwoods, in most areas

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 2 inches—dark brown channery silt loam

Subsurface layer:
2 to 5 inches—yellowish brown channery silt loam

Subsoil:
5 to 18 inches—strong brown channery or very channery silt loam

Substratum:
18 inches—weathered, tilted and fractured siltstone

Soil Properties and Features

Permeability: Moderately rapid or rapid
Available water capacity: Very low
High water table: At a depth of more than 6 feet
Drainage class: Excessively drained
Flood hazard: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 10 to 20 inches

Inclusions

Contrasting inclusions:
• Areas of Keener or Northcove soils that have bedrock at a depth of more than 60 inches; in concave positions

Similar inclusions:
• Small areas of soils that have fewer rocks throughout
• Areas of soils that have hard bedrock at a depth between 20 and 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because areas of this soil are so steep, shallow, and droughty, agricultural production of any type is virtually prohibited.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of a moisture deficiency caused by the limited depth to bedrock and the equipment limitation on very steep slopes, the establishment and maintenance of hay or pasture crops is very difficult.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• Because of the shallow depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment.
• Plant competition is a concern unless competing vegetation is controlled.
• Virginia pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The shallow depth to bedrock and the slope are limitations that are extremely difficult to overcome.

Interpretive Group

Land capability classification: 7s

CcG—Cataska channery silt loam, 50 to 80 percent slopes

Setting

Landscape position: Mountain ridges and side slopes
Major uses: Woodland, consisting of Virginia pine, upland oaks, and mixed hardwoods, in most areas

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 2 inches—dark brown channery silt loam

Subsurface layer:
2 to 5 inches—yellowish brown channery silt loam

Subsoil:
5 to 18 inches—strong brown channery or very channery silt loam

Substratum:
18 inches—weathered, tilted and fractured siltstone

Soil Properties and Features

Permeability: Moderately rapid or rapid
Available water capacity: Very low
High water table: At a depth of more than 6 feet
Drainage class: Excessively drained
Flood hazard: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 10 to 20 inches

Inclusions

Contrasting inclusions:
• Areas of Keener or Northcove soils that have bedrock at a depth of more than 60 inches; in concave positions

Similar inclusions:
• Small areas of soils that have fewer rock fragments throughout
• Areas of soils that have hard bedrock at a depth between 20 and 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because areas of this soil are so steep, shallow, and droughty, agricultural production of any type is virtually prohibited.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of a moisture deficiency caused by the limited depth to bedrock and the equipment limitation on extremely steep slopes, the establishment and maintenance of hay or pasture crops is very difficult.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• Because of the shallow depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Virginia pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The shallow depth to bedrock and the slope are limitations that are extremely difficult to overcome.

Interpretive Group

Land capability classification: 7s

ChE—Chestnut loam, 20 to 35 percent slopes

Setting

Landscape position: Tops and shoulders of mountain ridges
Major uses: Woodland in most areas; many areas are cleared and in pasture; some areas are used for the production of Christmas trees

Typical Profile

Surface layer:
0 to 1 inch—very dark grayish brown loam

Subsurface layer:
1 to 8 inches—brown loam

Subsoil:
8 to 23 inches—yellowish brown and brownish yellow loam

Substratum:
23 to 33 inches—brownish yellow loam
33 inches—weathered granite

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Areas of Tate soils that have more clay in the subsoil than the Chestnut soil and have bedrock at a depth of more than 60 inches; in concave positions
• Areas of Greenlee soils that have a high content of rock fragments and have bedrock at a depth of more than 60 inches; in concave positions
• Small areas of Cleveland soils that have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of Ashe soils that have hard bedrock at a depth between 20 and 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• Because of a moisture deficiency caused by the limited depth to bedrock and the equipment limitation on steep slopes, the establishment and maintenance of hay or pasture crops is very difficult.

• Good pasture management is essential for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Susceptibility to windthrow is a concern due to the limited rooting depth.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine and yellow-poplar.
• Fraser fir is an example of a Christmas tree species suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

ChF—Chestnut loam, 35 to 50 percent slopes

Setting

Landscape position: Side slopes of mountain ridges
Major uses: Woodland in most areas; many areas are cleared and in pasture; some areas are used for the production of Christmas trees

Typical Profile

Surface layer:
0 to 1 inch—very dark grayish brown loam

Subsurface layer:
1 to 8 inches—brown loam

Subsoil:
8 to 23 inches—yellowish brown and brownish yellow loam

Substratum:
23 to 33 inches—brownish yellow loam
33 inches—weathered granite

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Areas of Tate soils that have more clay in the subsoil than the Chestnut soil and have bedrock at a depth of more than 60 inches; in concave positions
• Areas of Greenlee soils that have a high content of rock fragments and have bedrock at a depth of more than 60 inches; in concave positions
• Small areas of Cleveland soils that have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of Ashe soils that have hard bedrock at a depth between 20 and 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of a moisture deficiency due to the limited depth to bedrock and the equipment limitation on very steep slopes, the establishment and maintenance of pasture crops is very difficult.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Poorly suited

Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Susceptibility to windthrow is a concern due to the limited rooting depth.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine and yellow-poplar.
• Fraser fir is an example of a Christmas tree species suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

CjD—Chestnut-Ashe complex, 15 to 30 percent slopes, very stony

Setting

Landscape position: Tops and shoulders of mountain ridges
Major uses: Woodland in most areas; many areas are cleared and in pasture; some areas are used for the production of Christmas trees

Composition

Chestnut soil: Averaging about 50 percent of map units, but ranging between 35 and 65 percent of each mapped area
Ashe soil: Averaging about 35 percent of map units, but ranging between 20 and 50 percent of each mapped area

Typical Profile

Chestnut

Surface layer:
0 to 1 inch—very dark grayish brown loam

Subsurface layer:
1 to 8 inches—brown loam

Subsoil:
8 to 23 inches—yellowish brown and brownish yellow loam

Substratum:
23 to 33 inches—brownish yellow loam
33 inches—weathered granite

Ashe

Surface layer:
0 to 2 inches—partially decomposed forest litter
2 to 8 inches—very dark grayish brown sandy loam

Subsoil:
8 to 15 inches—dark yellowish brown fine sandy loam
15 to 32 inches—yellowish brown gravelly fine sandy loam

Substratum:
32 inches—hard granite bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Chestnut—well drained; Ashe—somewhat excessively drained
Flood hazard: None
Reaction: Chestnut—very strongly acid or strongly acid; Ashe—very strongly acid to moderately acid
Depth to bedrock: Chestnut—20 to 40 inches to soft bedrock; Ashe—20 to 40 inches to hard bedrock

Inclusions

Contrasting inclusions:
• Areas of Tate soils that have more clay in the subsoil than the Chestnut and Ashe soils and have bedrock at a depth of more than 60 inches; in concave positions
• Areas of Greenlee soils that have a high content of rock fragments and have bedrock at a depth of more than 60 inches; in concave positions
• Small areas of Cleveland soils that have bedrock at a depth of less than 20 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Moderately suited

Suitability for hay: Poorly suited
Management concerns and measures:
• The slope and the restricted available water capacity limit the use of these soils for hayland.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Susceptibility to windthrow is a concern due to the limited rooting depth.
• Plant competition is a concern unless competing vegetation is controlled.
• Seedling mortality is a concern in areas of the Ashe soil because of moisture deficiency and is worse on south- and west-facing slopes.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

CjE—Chestnut-Ashe complex, 30 to 50 percent slopes, very stony

Setting

Landscape position: Tops and shoulders of mountain ridges
Major uses: Woodland in most areas; many areas are cleared and in pasture; some areas are used for the production of Christmas trees

Composition

Chestnut soil: Averaging about 50 percent of map units, but ranging between 35 and 65 percent of each mapped area
Ashe soil: Averaging about 35 percent of map units, but ranging between 20 and 50 percent of each mapped area

Typical Profile

Chestnut

Surface layer:
0 to 1 inch—very dark grayish brown loam

Subsurface layer:
1 to 8 inches—brown loam

Subsoil:
8 to 23 inches—yellowish brown and brownish yellow loam

Substratum:
23 to 33 inches—brownish yellow loam
33 inches—weathered granite

Ashe

Surface layer:
0 to 2 inches—partially decomposed forest litter
2 to 8 inches—very dark grayish brown sandy loam

Subsoil:
8 to 15 inches—dark yellowish brown fine sandy loam
15 to 32 inches—yellowish brown gravelly fine sandy loam

Substratum:
32 inches—hard granite bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Chestnut—well drained; Ashe—somewhat excessively drained
Flood hazard: None
Reaction: Chestnut—very strongly acid or strongly acid; Ashe—very strongly acid to moderately acid
Depth to bedrock: Chestnut—20 to 40 inches to soft bedrock; Ashe—20 to 40 inches to hard bedrock

Inclusions

Contrasting inclusions:
• Areas of Tate soils that have more clay in the subsoil than the Chestnut and Ashe soils and have bedrock at a depth of more than 60 inches; in concave positions
• Areas of Greenlee soils that have a high content of rock fragments and have bedrock at a depth of more than 60 inches; in concave positions
• Small areas of Cleveland soils that have bedrock at a depth of less than 20 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation cause by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• Because of a moisture deficiency due to the limited depth to bedrock and the equipment limitation on steep slopes, the establishment and maintenance of hay or pasture crops is very difficult.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment.
• Susceptibility to windthrow is a concern due to the limited rooting depth.
• Plant competition is a concern unless competing vegetation is controlled.
• Seedling mortality is a concern in areas of the Ashe soil because of moisture deficiency and is worse on south- and west-facing slopes.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

CjF—Chestnut-Ashe complex, 50 to 95 percent slopes, very stony

Setting

Landscape position: Side slopes of mountain ridges
Major uses: Woodland in most areas; many areas are cleared and in pasture; some areas are used for the production of Christmas trees

Composition

Chestnut soil: Averaging about 50 percent of map units, but ranging between 40 and 60 percent of each mapped area
Ashe soil: Averaging about 35 percent of map units, but ranging between 20 and 50 percent of each mapped area

Typical Profile

Chestnut

Surface layer:
0 to 1 inch—very dark grayish brown loam

Subsurface layer:
1 to 8 inches—brown loam

Subsoil:
8 to 23 inches—yellowish brown and brownish yellow loam

Substratum:
23 to 33 inches—brownish yellow loam
33 inches—weathered granite

Ashe

Surface layer:
0 to 2 inches—partially decomposed forest litter
2 to 8 inches—very dark grayish brown sandy loam

Subsoil:
8 to 15 inches—dark yellowish brown fine sandy loam
15 to 32 inches—yellowish brown gravelly fine sandy loam

Substratum:
32 inches—hard granite bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Chestnut—well drained; Ashe—somewhat excessively drained
Flood hazard: None

Reaction: Chestnut—very strongly acid or strongly acid; Ashe—very strongly acid to moderately acid
Depth to bedrock: Chestnut—20 to 40 inches to soft bedrock; Ashe—20 to 40 inches to hard bedrock

Inclusions

Contrasting inclusions:
• Areas of Tate soils that have more clay in the subsoil than the Chestnut and Ashe soils and have bedrock at a depth of more than 60 inches; in concave positions
• Areas of Greenlee soils that have a high content of rock fragments and have bedrock at a depth of more than 60 inches; in concave positions
• Small areas of Cleveland soils that have bedrock at a depth of less than 20 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of a moisture deficiency due to the limited depth to bedrock and the equipment limitation on very steep slopes, the establishment and maintenance of pasture crops is very difficult.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Susceptibility to windthrow is a concern due to the limited rooting depth.
• Plant competition is a concern unless competing vegetation is controlled.
• Seedling mortality is a concern in areas of the Ashe soil because of moisture deficiency and is worse on south- and west-facing slopes.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

CkG—Cleveland sandy loam, 50 to 80 percent slopes

Setting

Landscape position: Shoulders, points, and side slopes of mountain ridges
Major uses: Woodland, consisting of pitch pine, Virginia pine, and chestnut oak, in most areas

Typical Profile

Surface layer:
0 to 2 inches—very dark grayish brown sandy loam

Subsoil:
2 to 10 inches—brownish yellow gravelly sandy loam

Substratum:
10 inches—hard, coarse-grained granite

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Very low
High water table: At a depth of more than 6 feet
Drainage class: Somewhat excessively drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 10 to 20 inches

Inclusions

Contrasting inclusions:
• Small areas of Chestnut and Ashe soils that have bedrock between depths of 20 and 40 inches

Similar inclusions:
• Areas of soils that have numerous granite rock outcrops in some places

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because areas of this soil are so steep and droughty, agricultural production of any type is virtually prohibited.

Pasture and hay

Suitability: Unsuited
Management concerns and measures:
• Because of a moisture deficiency due to the shallow depth to bedrock and the equipment limitation on extremely steep slopes, the establishment and maintenance of hay or pasture crops is very difficult.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Because of the shallow depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
• Trees suitable for planting include eastern white pine and shortleaf pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The slope and depth to bedrock are limitations that are extremely difficult to overcome.

Interpretive Group

Land capability classification: 7e

Cn—Colvard fine sandy loam, occasionally flooded

Setting

Landscape position: Flood plains
Major uses: Crop production in most areas

Typical Profile

Surface layer:
0 to 9 inches—brown fine sandy loam

Subsoil:
9 to 60 inches—dark yellowish brown fine sandy loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Moderate
High water table: Apparent, at a depth of 4 to 6 feet from December to April
Drainage class: Well drained
Flood hazard: Occasional for very brief duration from November to May
Reaction: Strongly acid to slightly alkaline
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of poorly drained soils

Similar inclusions:
• Small areas of well drained and somewhat poorly drained soils
• Areas of Unison soils, which are well drained and have more clay in the subsoil than the Colvard soil; on adjacent stream terraces
• Areas below Watauga Dam where this soil is sufficiently protected so that it is subject only to rare flooding for very brief duration

Use and Management

Cropland

Suitability: Well suited
Management concerns and measures:
• This soil is suited to most of the crops, grasses, and legumes that are adapted to the local climate.
• Crop species that can tolerate occasional flooding are best suited.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• The main limitation affecting pasture and hayland is the occasional flooding.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include eastern white pine and yellow-poplar.

Urban development

Suitability: Poorly suited

Management concerns and measures:
• The flooding is a limitation that is extremely difficult to overcome.

Interpretive Group

Land capability classification: 2w

Co—Colvard-Urban land complex

Setting

Landscape position: Flood plains
Major uses: Commercial and residential areas that have been protected from flooding

Composition

Colvard soil: Averaging about 50 percent of map units, but ranging between 40 and 60 percent of each mapped area
Urban land: Averaging about 40 percent of map units, but ranging between 30 and 50 percent of each mapped area

Typical Profile

Colvard

Surface layer:
0 to 9 inches—brown fine sandy loam

Subsoil:
9 to 32 inches—yellowish brown fine sandy loam
32 to 60 inches—dark yellowish brown loamy fine sand

Urban land

Urban land is mostly covered by streets, parking lots, buildings, and other structures common to urban areas.

Use and Management

Because areas of this map unit have been manipulated and disturbed by development and construction activities, onsite investigation is recommended before making land use decisions.

Agriculture and woodland management are generally not practical in areas that are this intensively developed.

Interpretive Group

Land capability classification: None assigned

CrF—Craggey-Burton complex, windswept, 35 to 50 percent slopes, extremely bouldery

Setting

Landscape position: Shoulders and side slopes at high elevations
Major uses: Woodland consisting mostly of Fraser fir

Composition

Craggey soil: Averaging about 60 percent of map units, but ranging between 45 and 75 percent of each mapped area
Burton soil: Averaging about 30 percent of map units, but ranging between 20 and 40 percent of each mapped area

Typical Profile

Craggey

Surface layer:
0 to 13 inches—black loam

Substratum:
13 inches—hard gneiss bedrock

Burton

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 14 inches—black loam

Subsoil:
14 to 24 inches—dark yellowish brown loam

Substratum:
24 inches—hard gneiss bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Craggey—very low or low; Burton—low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Craggey—somewhat excessively drained; Burton—well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: Craggey—10 to 20 inches; Burton—20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of organic soils that range from less than 10 to as much as 25 inches thick over bedrock

• Areas of Balsam soils that have a high content of rock fragments and have bedrock at a depth of more than 60 inches

Similar inclusions:
• Small areas of soils that have a high content of rock fragments in the subsoil
• Areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland, pasture, and hay

Suitability for cropland and hay: Unsuited
Suitability for pasture: Poorly suited
Management concerns and measures:
• Because areas of this map unit are so cold and droughty, agricultural production of any type is virtually prohibited.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• Because of the shallow depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Because trees at high, frigid, exposed elevations are susceptible to severe wind and frost damage, productivity is substantially limited.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

CsB—Craigsville cobbly sandy loam, 1 to 5 percent slopes, frequently flooded

Setting

Landscape position: Mountain flood plains
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 1 inch—highly decomposed forest litter
1 to 4 inches—dark grayish brown cobbly sandy loam

Subsurface layer:
4 to 9 inches—dark yellowish brown very cobbly sandy loam

Subsoil:
9 to 40 inches—yellowish brown very cobbly sandy loam

Substratum:
40 to 63 inches—yellowish brown extremely cobbly sandy loam

Soil Properties and Features

Permeability: Moderately rapid or rapid
Available water capacity: Low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: Frequent for very brief duration from November to May
Reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 60 inches

Inclusions

Similar inclusions:
• Small areas of Northcove soils that are not subject to flooding
• Small areas that consist mainly of cobbles, stones, or boulders and have little or no soil material

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Rock fragments in the surface layer severely hinder or prevent tillage operations in most areas.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• In most areas, rock fragments in and on the soil

prevent the use of mowers, disks, and other equipment needed for hay cutting or pasture renovation.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include eastern white pine and yellow-poplar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The flood hazard is a limitation that is extremely difficult to overcome.

Interpretive Group

Land capability classification: 3s

DtE—Ditney sandy loam, 20 to 35 percent slopes

Setting

Landscape position: Tops and shoulders of mountain ridges
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown sandy loam

Subsurface layer:
3 to 7 inches—yellowish brown loam

Subsoil:
7 to 18 inches—yellowish brown loam
18 to 24 inches—yellowish brown cobbly loam

Substratum:
24 inches—hard sandstone

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of Cataska or Unicoi soils that have a high content of rock fragments and have bedrock within a depth of 20 inches

Similar inclusions:
• Areas of soils that have less sand and more clay in the subsoil
• Small areas of soils that have bedrock at a depth of more than 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.

Woodland

Suitability: Well suited
Management concerns and measures:
• The slope limits the operation of equipment in some areas.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include shortleaf pine and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

DtF—Ditney sandy loam, 35 to 50 percent slopes

Setting

Landscape position: Side slopes of mountain ridges
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown sandy loam

Subsurface layer:
3 to 7 inches—yellowish brown loam

Subsoil:
7 to 18 inches—yellowish brown loam
18 to 24 inches—yellowish brown cobbly loam

Substratum:
24 inches—hard sandstone

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of Cataska or Unicoi soils that have a high content of rock fragments and have bedrock within a depth of 20 inches

Similar inclusions:
• Areas of soils that have less sand and more clay in the subsoil
• Small areas of soils that have bedrock at a depth of more than 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include shortleaf pine and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

DtG—Ditney sandy loam, 50 to 80 percent slopes

Setting

Landscape position: Side slopes of mountain ridges
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown sandy loam

Subsurface layer:
3 to 7 inches—yellowish brown loam

Subsoil:
7 to 18 inches—yellowish brown loam
18 to 24 inches—yellowish brown cobbly loam

Substratum:
24 inches—hard sandstone

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of Cataska or Unicoi soils that have a high content of rock fragments and have bedrock within a depth of 20 inches

Similar inclusions:
• Areas of soils that have less sand and more clay in the subsoil
• Small areas of soils that have bedrock at a depth of more than 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Unsuited
Management concerns and measures:
• Because of the slope and the low available water capacity, the establishment and maintenance of pasture crops is extremely difficult.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include shortleaf pine and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

EdD—Edneytown loam, 12 to 20 percent slopes

Setting

Landscape position: Tops and shoulders of broad, convex mountain ridges
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 2 inches—partially decomposed organic matter
2 to 4 inches—brown loam

Subsurface layer:
4 to 10 inches—yellowish brown loam

Subsoil:
10 to 30 inches—yellowish brown clay loam
30 to 48 inches—brownish yellow and reddish yellow sandy clay loam

Substratum:
48 to 62 inches—mottled sandy loam
62 inches—weathered granite

Soil Properties and Features

Permeability: Moderate
Available water capacity: Moderate or high
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Chestnut and Ashe soils that have bedrock at a depth between 20 and 40 inches

Similar inclusions:
• Areas of Edneyville soils that have more sand and less clay in the subsoil

Use and Management

Cropland

Suitability: Poorly suited

Management concerns and measures:
- Erosion is a severe hazard if cultivated crops are grown.
- Conservation tillage, crop residue management, contour farming, crop rotations, and the use of cover crops are important in controlling erosion and maintaining productivity when crops are grown.

Pasture and hay

Suitability: Moderately suited
Management concerns and measures:
- Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on moderately steep pastures and hayland.
- Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
- The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
- Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
- Trees suitable for planting include shortleaf pine and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
- The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

EvE—Edneyville-Chestnut complex, 30 to 50 percent slopes, stony

Setting

Landscape position: Tops, shoulders, and side slopes of mountain ridges
Major uses: Woodland in most areas; some areas are cleared and used for pasture; some areas are used for the production of Christmas trees

Composition

Edneyville soil: Averaging about 40 percent of map units, but ranging between 25 and 55 percent of each mapped area
Chestnut soil: Averaging about 35 percent of map units, but ranging between 20 and 50 percent of each mapped area

Typical Profile

Edneyville

Surface layer:
0 to 1 inch—partially decomposed leaves and twigs
1 to 4 inches—very dark gray fine sandy loam

Subsoil:
4 to 18 inches—yellowish brown loam
18 to 25 inches—yellowish brown sandy loam

Substratum:
25 to 60 inches—mottled gravelly loamy sand

Chestnut

Surface layer:
0 to 1 inch—very dark grayish brown loam

Subsurface layer:
1 to 8 inches—brown loam

Subsoil:
8 to 23 inches—yellowish brown and brownish yellow loam

Substratum:
23 to 33 inches—brownish yellow loam
33 inches—weathered granite

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Edneyville—moderate; Chestnut—low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Edneyville—very strongly acid to moderately acid; Chestnut—very strongly acid or strongly acid
Depth to bedrock: Edneyville—more than 60 inches; Chestnut—20 to 40 inches to soft bedrock

Inclusions

Contrasting inclusions:
- Areas of Cleveland soils that have bedrock at a depth of less than 20 inches; on points of ridges
- Areas of Greenlee soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Ashe soils that have hard bedrock at a depth between 20 and 40 inches
• Areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• The slope and the rock fragments in and on the soil are severe limitations affecting the management of pasture and hayland.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment.
• Susceptibility to windthrow is a concern in areas of the Chestnut soil due to the limited rooting depth.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the depth to bedrock of the Chestnut soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

EvF—Edneyville-Chestnut complex, 50 to 80 percent slopes, stony

Setting

Landscape position: Tops, shoulders, and side slopes of mountain ridges
Major uses: Woodland in most areas; some areas are cleared and used for pasture; some areas are used for the production of Christmas trees

Composition

Edneyville soil: Averaging about 40 percent of map units, but ranging between 25 and 55 percent of each mapped area
Chestnut soil: Averaging about 35 percent of map units, but ranging between 20 and 50 percent of each mapped area

Typical Profile

Edneyville

Surface layer:
0 to 1 inch—partially decomposed leaves and twigs
1 to 4 inches—very dark gray fine sandy loam

Subsoil:
4 to 18 inches—yellowish brown loam
18 to 25 inches—yellowish brown sandy loam

Substratum:
25 to 60 inches—mottled gravelly loamy sand

Chestnut

Surface layer:
0 to 1 inch—very dark grayish brown loam

Subsurface layer:
1 to 8 inches—brown loam

Subsoil:
8 to 23 inches—yellowish brown and brownish yellow loam

Substratum:
23 to 33 inches—brownish yellow loam
33 inches—weathered granite

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Edneyville—moderate; Chestnut—low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Edneyville—very strongly acid to moderately acid; Chestnut—very strongly acid or strongly acid

Depth to bedrock: Edneyville—more than 60 inches; Chestnut—20 to 40 inches to soft bedrock

Inclusions

Contrasting inclusions:
• Areas of Cleveland soils that have bedrock at a depth of less than 20 inches; on points of ridges
• Areas of Greenlee soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Ashe soils that have hard bedrock at a depth between 20 and 40 inches
• Areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• The slope and the rock fragments in and on the soil are severe limitations affecting the management of pasture and hayland.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Susceptibility to windthrow is a concern in areas of the Chestnut soil due to the limited rooting depth.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the depth to bedrock of the Chestnut soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

GrE—Greenlee very cobbly loam, 20 to 35 percent slopes

Setting

Landscape position: Mountain coves, benches, and footslopes
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 5 inches—dark brown very cobbly loam

Subsoil:
5 to 36 inches—dark brown and strong brown very cobbly loam
36 to 45 inches—yellowish brown very cobbly sandy loam

Substratum:
45 to 60 inches—yellowish brown extremely cobbly sandy loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of soils that have bedrock at a depth of less than 60 inches
• Areas of Cleveland soils that have bedrock at a depth of less than 20 inches; on adjacent side slopes

Similar inclusions:
• Small areas that consist primarily of stones, cobbles, and boulders and have very little soil material

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because areas of this map unit are so steep and rocky, agricultural production of any type is virtually prohibited.

Pasture and hay

Suitability: Unsuited
Management concerns and measures:
• Because of the rock fragments in and on the soil and the slope, the use of mowers, disks, and other equipment needed for hay cutting or pasture renovation is prevented in most areas.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation.
• The slope and the rock fragments in and on the soil limit the operation of equipment.
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine and yellow-poplar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

GrF—Greenlee very cobbly loam, 35 to 50 percent slopes

Setting

Landscape position: Mountain coves, benches, and footslopes
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 5 inches—dark brown very cobbly loam

Subsoil:
5 to 36 inches—dark brown and strong brown very cobbly loam
36 to 45 inches—yellowish brown very cobbly sandy loam

Substratum:
45 to 60 inches—yellowish brown extremely cobbly sandy loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of soils that have bedrock at a depth of less than 60 inches
• Areas of Cleveland soils that have bedrock at a depth of less than 20 inches; on adjacent side slopes

Similar inclusions:
• Small areas that consist primarily of stones, cobbles, and boulders and have very little soil material

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because areas of this soil are so steep and rocky, agricultural production of any type is virtually prohibited.

Pasture and hay

Suitability: Unsuited
Management concerns and measures:
• Because of the rock fragments in and on the soil and the slope, the use of mowers, disks, and other equipment needed for hay cutting or pasture renovation is prevented in most areas.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation.
• The slope and the rock fragments in and on the soil limit the safe operation of equipment and the types of equipment that may be used.
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• Plant competition is a concern unless competing vegetation is controlled.

• Trees suitable for planting include eastern white pine and yellow-poplar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

GsD—Groseclose silty clay loam, 12 to 20 percent slopes

Setting

Landscape position: Shoulders and side slopes of upland ridges
Major uses: Pasture or hay in most areas

Typical Profile

Surface layer:
0 to 4 inches—strong brown silty clay loam

Subsoil:
4 to 28 inches—yellowish red clay
28 to 60 inches—yellowish red silty clay loam

Soil Properties and Features

Permeability: Slow
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to strongly acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Talbott soils that have bedrock within a depth of 40 inches

Similar inclusions:
• Small areas of soils that have bedrock at a depth between 40 and 60 inches
• Areas of Braddock soils that have more sand in the subsoil

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Erosion is a severe hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, crop rotations, and the use of cover crops are important in controlling erosion and maintaining productivity when crops are grown.
• Contour strips, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on moderately steep pastures and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine and yellow-poplar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the high shrink-swell potential in the clayey subsoil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 4e

GsE—Groseclose silty clay loam, 20 to 35 percent slopes

Setting

Landscape position: Side slopes of upland ridges
Major uses: Pasture in most areas

Typical Profile

Surface layer:
0 to 4 inches—strong brown silty clay loam

Subsoil:
4 to 28 inches—yellowish red clay
28 to 60 inches—yellowish red silty clay loam

Soil Properties and Features

Permeability: Slow
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to strongly acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Talbott soils that have bedrock within a depth of 40 inches

Similar inclusions:
• Small areas of soils that have bedrock at a depth between 40 and 60 inches
• Areas of Braddock soils that have more sand in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on steep pastures and hayland.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine and yellow-poplar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the high shrink-swell potential in the clayey subsoil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

JeE—Jeffrey loam, 20 to 35 percent slopes

Setting

Landscape position: Mountain ridgetops
Major uses: Woodland in all areas

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 10 inches—very dark grayish brown and dark brown loam

Subsoil:
10 to 21 inches—brown loam
21 to 28 inches—yellowish brown gravelly fine sandy loam

Substratum:
28 inches—fractured sandstone

Soil Properties and Features

Permeability: Moderate or moderately rapid
Available water capacity: Low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of Unicoi soils that have a high content of rock fragments and have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of Ditney soils that do not have a dark surface layer

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• Because of the slope and the restricted available water capacity, this soil is limited for use as hayland.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Well suited
Management concerns and measures:
• The slope limits the operation of equipment in some areas.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the depth to bedrock and the slope. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

JeF—Jeffrey loam, 35 to 50 percent slopes

Setting

Landscape position: Tops and shoulders of mountain ridges
Major uses: Woodland in all areas

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 10 inches—very dark grayish brown and dark brown loam

Subsoil:
10 to 21 inches—brown loam
21 to 28 inches—yellowish brown gravelly fine sandy loam

Substratum:
28 inches—fractured sandstone

Soil Properties and Features

Permeability: Moderate or moderately rapid
Available water capacity: Low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of Unicoi soils that have a high content of rock fragments and have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of Ditney soils that do not have a dark surface layer

Use and Management

Cropland

Suitability: Unsuited

Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of a moisture deficiency due to the limited depth to bedrock and the equipment limitation on very steep slopes, the establishment and maintenance of hay or pasture crops is very difficult.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the depth to bedrock and the slope. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

KeC—Keener loam, 5 to 12 percent slopes

Setting

Landscape position: Footslopes, benches, and colluvial fans
Major uses: Woodland in most areas; some small areas are cleared and used for agriculture

Typical Profile

Surface layer:
0 to 2 inches—very dark grayish brown loam

Subsurface layer:
2 to 7 inches—yellowish brown loam

Subsoil:
7 to 45 inches—yellowish brown and strong brown loam
45 to 63 inches—strong brown very cobbly loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Areas of Northcove soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Maymead soils that have more sand and less clay in the subsoil
• Areas that have large quantities of rock fragments scattered on the soil surface

Use and Management

Cropland

Suitability: Moderately suited
Management concerns and measures:
• Erosion is a moderate hazard if cultivated crops are grown.
• Rock fragments in the surface layer may hinder tillage operations in some areas.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration rates, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include northern red oak and yellow-poplar.

Urban development

Suitability: Moderately suited
Management concerns and measures:
• The main limitations are the slope and the large stones in the subsoil.
• Specially designing structures and facilities can often overcome the soil limitations.

Interpretive Group

Land capability classification: 3e

KeD—Keener loam, 12 to 20 percent slopes

Setting

Landscape position: Footslopes, benches, colluvial fans, and coves
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 2 inches—very dark grayish brown loam

Subsurface layer:
2 to 7 inches—yellowish brown loam

Subsoil:
7 to 45 inches—yellowish brown and strong brown loam
45 to 63 inches—strong brown very cobbly loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Areas of Northcove soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Maymead soils that have more sand and less clay in the subsoil
• Areas that have large quantities of rock fragments scattered on the soil surface

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Erosion is a severe hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, crop rotations, and the use of cover crops are important in controlling erosion and maintaining productivity when crops are grown.
• Contour strips, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Moderately suited
Management concerns and measures:
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on moderately steep pastures and hayland.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Locating roads and trails as close to the contour as possible, protecting permanent access roads by the use of gravel, installing water breaks and culverts, and closing roads that are no longer used may reduce the hazard of erosion.
• Equipment tracks or tires can cause rutting or miring during rainy periods, especially where the soil has eroded to the subsoil. The use of equipment can be delayed until the soil is dry, and gravel or other suitable subgrade material can be added to the main roads.
• Plant competition is a concern unless competing vegetation is controlled.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the subsoil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 4e

KeE—Keener loam, 20 to 35 percent slopes

Setting

Landscape position: Footslopes, benches, colluvial fans, and coves
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 2 inches—very dark grayish brown loam

Subsurface layer:
2 to 7 inches—yellowish brown loam

Subsoil:
7 to 45 inches—yellowish brown and strong brown loam
45 to 63 inches—strong brown very cobbly loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Areas of Northcove soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Maymead soils that have more sand and less clay in the subsoil
• Areas that have large quantities of rock fragments scattered on the soil surface

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on steep pastures and hayland.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include northern red oak and yellow-poplar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the subsoil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

KeF—Keener loam, 35 to 50 percent slopes

Setting

Landscape position: Benches, colluvial fans, and coves
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 2 inches—very dark grayish brown loam

Subsurface layer:
2 to 7 inches—yellowish brown loam

Subsoil:
7 to 45 inches—yellowish brown and strong brown loam
45 to 63 inches—strong brown very cobbly loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Areas of Northcove soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Maymead soils that have more sand and less clay in the subsoil
• Areas that have large quantities of rock fragments scattered on the soil surface

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include northern red oak and yellow-poplar.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the subsoil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

LoC—Lonon loam, 5 to 12 percent slopes

Setting

Landscape position: Footslopes, benches, and toeslopes
Major uses: Woodland in some areas; pasture, hay, or crop production in several areas

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown loam

Subsoil:
8 to 33 inches—yellowish red and red clay loam
33 to 49 inches—red gravelly clay loam
49 to 61 inches—yellowish red gravelly sandy clay loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Northcove soils that have a high content of rock fragments

Similar inclusions:
• Areas of Keener soils that have browner colors in the subsoil
• Small areas of soils that have large quantities of cobbles or stones scattered on the soil surface

Use and Management

Cropland

Suitability: Moderately suited
Management concerns and measures:
• Erosion is a moderate hazard if cultivated crops are grown.
• Rock fragments in the surface layer may hinder tillage operations in some areas.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration rates, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Eastern white pine is suitable for planting.

Urban development

Suitability: Moderately suited
Management concerns and measures:
• The main limitations are the slope and the large stones in the subsoil.
• Specially designing structures and facilities can often overcome the soil limitations.

Interpretive Group

Land capability classification: 3e

LoD—Lonon loam, 12 to 20 percent slopes

Setting

Landscape position: Footslopes, benches, and toeslopes
Major uses: Woodland in some areas; pasture, hay, or crop production in several areas

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown loam

Subsoil:
8 to 33 inches—yellowish red and red clay loam
33 to 49 inches—red gravelly clay loam
49 to 61 inches—yellowish red gravelly sandy clay loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Northcove soils that have a high content of rock fragments

Similar inclusions:
• Areas of Keener soils that have browner colors in the subsoil
• Small areas of soils that have large quantities of cobbles or stones scattered on the soil surface

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Erosion is a severe hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, crop rotations, and the use of cover crops are important in controlling erosion and maintaining productivity when crops are grown.
• Contour strips, grassed waterways, field borders, and

filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Moderately suited
Management concerns and measures:
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on moderately steep pastures and hayland.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Locating roads and trails as close to the contour as possible, protecting permanent access roads by the use of gravel, installing water breaks and culverts, and closing roads that are no longer used may reduce the hazard of erosion.
• Equipment tracks or tires can cause rutting or miring during rainy periods, especially where the soil has eroded to the subsoil. The use of equipment can be delayed until the soil is dry, and gravel or other suitable subgrade material can be added to the main roads.
• Plant competition is a concern unless competing vegetation is controlled.
• Eastern white pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the subsoil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 4e

LoE—Lonon loam, 20 to 35 percent slopes

Setting

Landscape position: Footslopes, benches, and toeslopes
Major uses: Woodland in some areas; pasture, hay, or crop production in several areas

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown loam

Subsoil:
8 to 33 inches—yellowish red and red clay loam
33 to 49 inches—red gravelly clay loam
49 to 61 inches—yellowish red gravelly sandy clay loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Northcove soils that have a high content of rock fragments

Similar inclusions:
• Areas of Keener soils that have browner colors in the subsoil
• Small areas of soils that have large quantities of cobbles or stones scattered on the soil surface

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on steep pastures and hayland.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Eastern white pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the subsoil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

MaE—Maymead loam, 20 to 35 percent slopes

Setting

Landscape position: Mountain coves
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 1 inch—dark brown loam

Subsurface layer:
1 to 4 inches—dark yellowish brown loam

Subsoil:
4 to 38 inches—yellowish brown loam and cobbly loam

Substratum:
38 to 63 inches—yellowish brown very cobbly loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Northcove soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Keener soils that have less sand and more clay in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• Because of the slope and the restricted available water capacity, this soil is limited for use as hayland.
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on steep pastures and hayland.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

MaF—Maymead loam, 35 to 50 percent slopes

Setting

Landscape position: Mountain coves
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 1 inch—dark brown loam

Subsurface layer:
1 to 4 inches—dark yellowish brown loam

Subsoil:
4 to 38 inches—yellowish brown loam and cobbly loam

Substratum:
38 to 63 inches—yellowish brown very cobbly loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Northcove soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Keener soils that have less sand and more clay in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

MoD—Montevallo channery silt loam, 12 to 20 percent slopes

Setting

Landscape position: Tops and shoulders of upland ridges
Major uses: Most areas are cleared and used as pasture

Typical Profile

Surface layer:
0 to 2 inches—slightly decomposed forest litter
2 to 6 inches—brown channery silt loam

Subsurface layer:
6 to 9 inches—dark yellowish brown very channery silt loam

Subsoil:
9 to 15 inches—yellowish brown very channery silty clay loam

Substratum:
15 inches—tilted, fractured, weathered shale

Soil Properties and Features

Permeability: Moderate
Available water capacity: Very low

High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid, except in limed areas
Depth to bedrock: 10 to 20 inches

Inclusions

Contrasting inclusions:
• Small severely eroded areas where shale bedrock is at or very near the soil surface

Similar inclusions:
• Areas of soils that have shale bedrock at a depth of more than 20 inches
• Areas of soils that have fewer rock fragments in the soil profile

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting cultivated crops are the erosion hazard, shallow root zone, depth to bedrock, and very low available water capacity.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of a moisture deficiency due to the limited depth to bedrock, the establishment and maintenance of hay or pasture crops is very difficult.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Because of the shallow depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
• Virginia pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

MoE—Montevallo channery silt loam, 20 to 35 percent slopes

Setting

Landscape position: Shoulders and side slopes of upland ridges
Major uses: Most areas are cleared and used as pasture

Typical Profile

Surface layer:
0 to 2 inches—slightly decomposed forest litter
2 to 6 inches—brown channery silt loam

Subsurface layer:
6 to 9 inches—dark yellowish brown very channery silt loam

Subsoil:
9 to 15 inches—yellowish brown very channery silty clay loam

Substratum:
15 inches—tilted, fractured, weathered shale

Soil Properties and Features

Permeability: Moderate
Available water capacity: Very low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid, except in limed areas
Depth to bedrock: 10 to 20 inches

Inclusions

Contrasting inclusions:
• Small severely eroded areas where shale bedrock is at or very near the soil surface

Similar inclusions:
• Areas of soils that have shale bedrock at a depth of more than 20 inches
• Areas of soils that have fewer rock fragments in the soil profile

Use and Management

Cropland

Suitability: Unsuited

Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of a moisture deficiency due to the limited depth to bedrock and the equipment limitation on steep slopes, the establishment and maintenance of hay or pasture crops is very difficult.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Because of the shallow depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
• Virginia pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

MoF—Montevallo channery silt loam, 35 to 50 percent slopes

Setting

Landscape position: Side slopes of upland ridges
Major uses: Most areas are cleared and used as pasture

Typical Profile

Surface layer:
0 to 2 inches—slightly decomposed forest litter
2 to 6 inches—brown channery silt loam

Subsurface layer:
6 to 9 inches—dark yellowish brown very channery silt loam

Subsoil:
9 to 15 inches—yellowish brown very channery silty clay loam

Substratum:
15 inches—tilted, fractured, weathered shale

Soil Properties and Features

Permeability: Moderate
Available water capacity: Very low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid, except in limed areas
Depth to bedrock: 10 to 20 inches

Inclusions

Contrasting inclusions:
• Small severely eroded areas where shale bedrock is at or very near the soil surface

Similar inclusions:
• Areas of soils that have shale bedrock at a depth of more than 20 inches
• Areas of soils that have fewer rock fragments in the soil profile

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of a moisture deficiency due to the limited depth to bedrock and the equipment limitation on steep slopes, the establishment and maintenance of hay or pasture crops is very difficult.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates an erosion hazard during

harvesting and reforestation and limits the safe operation of equipment.
• Because of the shallow depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
• Virginia pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

MoG—Montevallo channery silt loam, 50 to 80 percent slopes

Setting

Landscape position: Side slopes of upland ridges
Major uses: Most areas are cleared and used as pasture

Typical Profile

Surface layer:
0 to 2 inches—slightly decomposed forest litter
2 to 6 inches—brown channery silt loam

Subsurface layer:
6 to 9 inches—dark yellowish brown very channery silt loam

Subsoil:
9 to 15 inches—yellowish brown very channery silty clay loam

Substratum:
15 inches—tilted, fractured, weathered shale

Soil Properties and Features

Permeability: Moderate
Available water capacity: Very low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid, except in limed areas
Depth to bedrock: 10 to 20 inches

Inclusions

Contrasting inclusions:
• Small severely eroded areas where shale bedrock is at or very near the soil surface

Similar inclusions:
• Areas of soils that have shale bedrock at a depth of more than 20 inches
• Areas of soils that have fewer rock fragments in the soil profile

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of a moisture deficiency due to the limited depth to bedrock and the equipment limitation on steep slopes, the establishment and maintenance of hay or pasture crops is very difficult.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Because of the shallow depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
• Virginia pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

NcF—Northcove very stony loam, 35 to 50 percent slopes

Setting

Landscape position: Mountain coves, footslopes, and benches
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 1 inch—dark brown very stony loam

Subsurface layer:
1 to 4 inches—dark yellowish brown stony sandy loam

Subsoil:
4 to 24 inches—yellowish brown very stony sandy loam

Substratum:
24 to 38 inches—yellowish brown very cobbly sandy loam
38 to 63 inches—yellowish brown extremely cobbly sandy loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Keener or Lonon soils that have fewer rock fragments and more clay in the subsoil than the Northcove soil

Similar inclusions:
• Small areas that consist mostly of stones, cobbles, or boulders and have very little soil material

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because areas of this soil are so steep, narrow, and rocky, agricultural production of any type is virtually prohibited.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Because of the rock fragments in and on the soil, the use of mowers, disks, and other equipment needed for hay cutting or pasture renovation is prevented in most areas.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation.
• The slope and rock fragments in and on the soil limit the safe operation of equipment.
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• Plant competition is a concern unless competing vegetation is controlled.
• Eastern white pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

NcG—Northcove very stony loam, 50 to 80 percent slopes

Setting

Landscape position: Mountain coves, footslopes, and benches
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 1 inch—dark brown very stony loam

Subsurface layer:
1 to 4 inches—dark yellowish brown stony sandy loam

Subsoil:
4 to 24 inches—yellowish brown very stony sandy loam

Substratum:
24 to 63 inches—yellowish brown extremely cobbly sandy loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Keener or Lonon soils that have fewer rock fragments and more clay in the subsoil than the Northcove soil

Similar inclusions:
• Small areas that consist mostly of stones, cobbles, or boulders and have very little soil material

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because areas of this soil are so steep, narrow, and rocky, agricultural production of any type is virtually prohibited.

Pasture and hay

Suitability: Unsuited
Management concerns and measures:
• Because of the low available water capacity, the high content of rock fragments in and on the soil, and the equipment limitation on extremely steep slopes, the establishment and maintenance of hay or pasture crops is very difficult.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation.
• The slope and the rock fragments in and on the soil limit the safe operation of equipment and the types of equipment that may be used.
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• Plant competition is a concern unless competing vegetation is controlled.
• Eastern white pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

Pj—Pettyjon loam, rarely flooded

Setting

Landscape position: Flood plains
Major uses: Most areas are cleared and used for hay or crop production

Typical Profile

Surface layer:
0 to 6 inches—brown loam

Subsoil:
6 to 40 inches—brown and dark yellowish brown loam

Substratum:
40 to 60 inches—dark yellowish brown sandy loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: Rare for very brief duration from December to March
Reaction: Slightly acid to slightly alkaline
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Steadman soils that are moderately well drained
• Small areas of Bloomingdale soils that are poorly drained

Similar inclusions:
• Small areas of soils that have less sand and more clay in the subsoil

Use and Management

Cropland

Suitability: Well suited
Management concerns and measures:
• This soil is suited to all of the crops, grasses, and legumes that are adapted to the local climate.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• This soil has few limitations affecting pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and black walnut.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting urban uses is the rare flooding. This limitation is especially severe for residential developments, with or without basements. The flooding is a moderate hazard for septic tank absorption fields, roads, and streets.

Interpretive Group

Land capability classification: 1

PmE—Plott loam, 15 to 30 percent slopes, stony

Setting

Landscape position: Mountain ridgetops
Major uses: Woodland in all areas

Typical Profile

Surface layer:
0 to 13 inches—very dark grayish brown loam

Subsurface layer:
13 to 16 inches—very dark grayish brown loam

Subsoil:
16 to 37 inches—strong brown loam
37 to 43 inches—dark brown sandy loam

Substratum:
43 to 60 inches—multicolored saprolite that crushes to loamy sand

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Unaka soils that have bedrock at a depth of less than 40 inches
• Areas of soils that have a high content of rock fragments in the subsoil

Similar inclusions:
• Small areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include northern red oak, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there

would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

PnD—Porters gravelly loam, 15 to 30 percent slopes, stony

Setting

Landscape position: Tops and shoulders of mountain ridges
Major uses: Woodland in most areas; a few areas are cleared and used for pasture; some areas are used for the production of Christmas trees

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 10 inches—dark brown and dark yellowish brown gravelly loam

Subsoil:
10 to 30 inches—dark yellowish brown loam

Substratum:
30 to 40 inches—dark yellowish brown fine sandy loam
40 to 54 inches—mottled gravelly loamy sand
54 inches—amphibolite bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 40 to 60 inches

Inclusions

Contrasting inclusions:
• Areas of Cleveland soils that have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of soils that do not have a dark surface layer
• Areas of Unaka soils that have bedrock at a depth between 20 and 40 inches

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Erosion is a severe hazard if cultivated crops are grown.
• Rock fragments in the surface layer hinder or prevent tillage operations in many areas.
• Conservation tillage, crop residue management, contour farming, crop rotations, and the use of cover crops are important in controlling erosion and maintaining productivity when crops are grown.

Pasture and hay

Suitability: Moderately suited
Management concerns and measures:
• The slope and the limited available water capacity restrict the use of this soil for hayland.
• Rock fragments in and on the soil hinder or prevent the use of mowers, disks, and other equipment needed for hay cutting or pasture renovation in many areas.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Equipment tracks or tires can cause rutting or miring during rainy periods. The use of equipment can be delayed until the soil is dry, and gravel or other suitable subgrade material can be added to the main roads.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 4e

PnE—Porters gravelly loam, 30 to 50 percent slopes, stony

Setting

Landscape position: Shoulders and side slopes of mountain ridges
Major uses: Woodland in most areas; a few areas are cleared and used for pasture; some areas are used for the production of Christmas trees

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 10 inches—dark brown and dark yellowish brown gravelly loam

Subsoil:
10 to 30 inches—dark yellowish brown loam

Substratum:
30 to 40 inches—dark yellowish brown fine sandy loam
40 to 54 inches—mottled gravelly loamy sand
54 inches—amphibolite bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 40 to 60 inches

Inclusions

Contrasting inclusions:
• Areas of Cleveland soils that have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of soils that do not have a dark surface layer
• Areas of Unaka soils that have bedrock at a depth between 20 and 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• The slope and the rock fragments in the surface layer are severe limitations affecting the management of pasture and hayland.
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

PnF—Porters gravelly loam, 50 to 80 percent slopes, stony

Setting

Landscape position: Side slopes of mountain ridges
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 10 inches—dark brown and dark yellowish brown gravelly loam

Subsoil:
10 to 30 inches—dark yellowish brown loam

Substratum:
30 to 40 inches—dark yellowish brown fine sandy loam
40 to 54 inches—mottled gravelly loamy sand
54 inches—amphibolite bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 40 to 60 inches

Inclusions

Contrasting inclusions:
• Areas of Cleveland soils that have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of soils that do not have a dark surface layer
• Areas of Unaka soils that have bedrock at a depth between 20 and 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• The slope and the rock fragments in the surface layer are severe limitations affecting the management of pasture and hayland.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

Po—Potomac gravelly loam, rarely flooded

Setting

Landscape position: Flood plains
Major uses: Most areas are cleared and used for hay or pasture

Typical Profile

Surface layer:
0 to 6 inches—very dark grayish brown gravelly loam

Substratum:
6 to 20 inches—dark yellowish brown very cobbly loamy sand
20 to 60 inches—dark yellowish brown extremely cobbly sand

Soil Properties and Features

Permeability: Rapid
Available water capacity: Low
High water table: Apparent, at a depth of 4 to 6 feet
Drainage class: Somewhat excessively drained
Flood hazard: Rare
Reaction: Very strongly acid to slightly alkaline
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Areas of soils that have few rock fragments in the soil profile
• Areas of soils that are moderately well drained, somewhat poorly drained, or poorly drained

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Rock fragments in the surface layer seriously hinder or prevent tillage operations in most areas.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting pasture and hayland is the low available water capacity.

• In some areas, rock fragments in and on the soil interfere with the use of mowers, disks, and other equipment needed for hay cutting or pasture renovation.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• Seedling mortality is a concern due to a moisture deficiency.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include northern red oak and American sycamore.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the flooding and the large stones in the soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 5s

ShB—Shady loam, 1 to 4 percent slopes, rarely flooded

Setting

Landscape position: Low stream terraces
Major uses: Crops, hay, or pasture in most areas

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown loam

Subsoil:
9 to 28 inches—strong brown clay loam
28 to 39 inches—strong brown gravelly clay loam

Substratum:
39 to 61 inches—gravelly sandy loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: Rare
Reaction: Very strongly acid to moderately acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Steadman soils that are moderately well drained

Similar inclusions:
• Small areas of soils that have more sand and less clay in the subsoil

Use and Management

Cropland

Suitability: Well suited
Management concerns and measures:
• This soil is suited to all of the crops, grasses, and legumes that are adapted to the local climate.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration rates, and maintain soil tilth.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• This soil has few limitations affecting pasture and hayland.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and black walnut.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting urban uses is the rare flooding. This limitation is especially severe for residential developments, with or without basements. The flooding is a moderate hazard for septic tank absorption fields, roads, and streets.

Interpretive Group

Land capability classification: 2e

SoE—Shelocta silt loam, 20 to 35 percent slopes

Setting

Landscape position: Mountain coves, benches, and footslopes
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 2 inches—partially decomposed mat of hardwood leaves and twigs
2 to 4 inches—dark brown silt loam
4 to 6 inches—yellowish brown silt loam

Subsurface layer:
6 to 12 inches—yellowish brown silt loam

Subsoil:
12 to 24 inches—yellowish brown silt loam
24 to 65 inches—strong brown channery silty clay loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to strongly acid, except in limed areas
Depth to bedrock: More than 48 inches

Inclusions

Contrasting inclusions:
• Areas of Northcove soils that have a high content of rock fragments throughout
• Areas of Cataska soils that have a high content of rock fragments and have bedrock at a depth of less than 20 inches

Similar inclusions:
• Areas of Keener soils that have more sand and less silt in the subsoil
• Small areas of soils that have bedrock at a depth between 20 and 48 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on steep pastures and hayland.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and northern red oak.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

SpF—Spivey very cobbly loam, 35 to 50 percent slopes

Setting

Landscape position: Mountain coves
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 17 inches—very dark brown and dark brown very cobbly loam

Subsoil:
17 to 38 inches—brown very cobbly loam
38 to 60 inches—strong brown very cobbly sandy loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Areas of Tusquitee soils that have fewer rock fragments in the soil profile than the Spivey soil

Similar inclusions:
• Small areas of soils that do not have a dark surface layer, either due to landscape position or mechanical disturbance
• Small areas of soils that have bedrock at a depth of less than 60 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because areas of this soil are so steep, narrow, and rocky, agricultural production of any type is virtually prohibited.

Pasture and hay

Suitability: Unsuited
Management concerns and measures:
• The slope and the rock fragments in the surface layer are severe limitations affecting the management of pasture and hayland.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment.
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

SpG—Spivey very cobbly loam, 50 to 80 percent slopes

Setting

Landscape position: Mountain coves
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 17 inches—very dark brown and dark brown very cobbly loam

Subsoil:
17 to 38 inches—brown very cobbly loam
38 to 60 inches—strong brown very cobbly sandy loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Areas of Tusquitee soils that have fewer rock fragments in the soil profile than the Spivey soil

Similar inclusions:
• Small areas of soils that do not have a dark surface layer, either due to landscape position or mechanical disturbance
• Small areas of soils that have bedrock at a depth of less than 60 inches

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because areas of this soil are so steep, narrow, and

rocky, agricultural production of any type is virtually prohibited.

Pasture and hay

Suitability: Unsuited
Management concerns and measures:
• The slope and the rock fragments in the surface layer are severe limitations affecting the management of pasture and hayland.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Seedling mortality is a concern due to a moisture deficiency and is worse on south- and west-facing slopes.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the large stones in the soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

St—Steadman silt loam, occasionally flooded

Setting

Landscape position: Flood plains
Major uses: Hay, pasture, or crop production

Typical Profile

Surface layer:
0 to 7 inches—dark yellowish brown silt loam

Subsurface layer:
7 to 13 inches—dark yellowish brown silt loam

Subsoil:
13 to 41 inches—yellowish brown and brownish yellow silty clay loam

Substratum:
41 to 60 inches—light yellowish brown silt loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: Apparent, at a depth of 1.5 to 3.0 feet from December to April
Drainage class: Moderately well drained
Flood hazard: Occasional for very brief duration from December to April
Reaction: Moderately acid to slightly alkaline
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Bloomingdale soils that are poorly drained
• Small areas of Pettyjon soils that are well drained

Similar inclusions:
• Areas of soils that have more clay in the subsoil
• Areas of soils that have more sand and less silt in the subsoil

Use and Management

Cropland

Suitability: Moderately suited
Management concerns and measures:
• The wetness may delay planting or hinder harvesting operations in some years.
• Crop species that can tolerate wetness are best suited.
• The flood hazard and the wetness in the root zone are limitations affecting crop species that do not tolerate wetness.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• The wetness may hinder early hay cutting operations in some years.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include northern red oak and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The flooding and wetness are limitations that are extremely difficult to overcome.

Interpretive Group

Land capability classification: 2w

TtC—Tate stony loam, 2 to 15 percent slopes

Setting

Landscape position: Footslopes and benches
Major uses: Woodland in most areas; some small areas are cleared and used for hay or pasture

Typical Profile

Surface layer:
0 to 3 inches—very dark grayish brown stony loam

Subsurface layer:
3 to 6 inches—dark yellowish brown stony loam

Subsoil:
6 to 45 inches—yellowish brown cobbly clay loam
45 to 51 inches—yellowish brown cobbly loam

Substratum:
51 to 60 inches—yellowish brown cobbly loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Greenlee soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Maymead soils that have less clay and more sand in the subsoil

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Erosion is a moderate hazard if cultivated crops are grown.
• Rock fragments in the surface layer severely hinder or prevent tillage operations in most areas.

Pasture and hay

Suitability: Moderately suited
Management concerns and measures:
• In most areas, rock fragments in and on the soil hinder the use of mowers, disks, and other equipment needed for hay cutting or pasture renovation.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Moderately suited
Management concerns and measures:
• The slope is the major limitation, but it can often be overcome by the adequate design of structures and facilities.

Interpretive Group

Land capability classification: 3s

TtE—Tate stony loam, 15 to 35 percent slopes

Setting

Landscape position: Coves, footslopes, and benches
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 3 inches—very dark grayish brown stony loam

Subsurface layer:
3 to 6 inches—dark yellowish brown stony loam

Subsoil:
6 to 45 inches—yellowish brown cobbly clay loam
45 to 51 inches—yellowish brown cobbly loam

Substratum:
51 to 60 inches—yellowish brown cobbly loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: At a depth of more than 6 feet

Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Greenlee soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Maymead soils that have less clay and more sand in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope and rock fragments, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• In most areas, rock fragments in and on the soil hinder the use of mowers, disks, and other equipment needed for hay cutting or pasture renovation.
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on steep pastures and hayland.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Equipment tracks or tires can cause rutting or miring during rainy periods, especially where the soil has eroded to the subsoil. The use of equipment can be delayed until the soil is dry, and gravel or other suitable subgrade material can be added to the main roads.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

TtF—Tate stony loam, 35 to 60 percent slopes

Setting

Landscape position: Mountain coves
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 3 inches—very dark grayish brown stony loam

Subsurface layer:
3 to 6 inches—dark yellowish brown stony loam

Subsoil:
6 to 45 inches—yellowish brown cobbly clay loam
45 to 51 inches—yellowish brown cobbly loam

Substratum:
51 to 60 inches—yellowish brown cobbly loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Greenlee soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Maymead soils that have less clay and more sand in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope and rock fragments, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• The slope and the rock fragments in the surface layer are severe limitations affecting the management of pasture and hayland.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Equipment tracks or tires can cause rutting or miring during rainy periods, especially where the soil has eroded to the subsoil. The use of equipment can be delayed until the soil is dry, and gravel or other suitable subgrade material can be added to the main roads.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include eastern white pine, yellow-poplar, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7s

TuE—Tusquitee loam, 20 to 35 percent slopes

Setting

Landscape position: Mountain coves, benches, and footslopes
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 9 inches—dark brown loam

Subsurface layer:
9 to 13 inches—yellowish brown loam

Subsoil:
13 to 38 inches—strong brown loam
38 to 47 inches—brown gravelly sandy loam

Substratum:
47 to 60 inches—brown gravelly sandy loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Strongly acid to slightly acid in the surface layer and strongly acid or moderately acid in the subsoil
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Greenlee soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Maymead soils that do not have a dark surface horizon
• Areas of Tate soils that have more clay and less sand in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on steep pastures and hayland.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.
• Equipment tracks or tires can cause rutting or miring during rainy periods. The use of equipment can be

delayed until the soil is dry, and gravel or other suitable subgrade material can be added to the main roads.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar, eastern white pine, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

TuF—Tusquitee loam, 35 to 50 percent slopes

Setting

Landscape position: Mountain coves
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 9 inches—dark brown loam

Subsurface layer:
9 to 13 inches—yellowish brown loam

Subsoil:
13 to 38 inches—strong brown loam
38 to 47 inches—brown gravelly sandy loam

Substratum:
47 to 60 inches—brown gravelly sandy loam

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Strongly acid to slightly acid in the surface layer and strongly acid or moderately acid in the subsoil
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Small areas of Greenlee soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Maymead soils that do not have a dark surface horizon
• Areas of Tate soils that have more clay and less sand in the subsoil

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Equipment tracks or tires can cause rutting or miring during rainy periods. The use of equipment can be delayed until the soil is dry, and gravel or other suitable subgrade material can be added to the main roads.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar, eastern white pine, and various Christmas tree species.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

UaE—Unaka loam, 15 to 35 percent slopes

Setting

Landscape position: Mountain ridgetops and shoulders
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 6 inches—very dark grayish brown loam

Subsurface layer:
6 to 8 inches—brown loam

Subsoil:
8 to 22 inches—yellowish brown loam

Substratum:
22 to 24 inches—yellowish brown loam
24 inches—schist bedrock

Soil Properties and Features

Permeability: Moderate
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
- Small areas of Plott soils that have bedrock at a depth of more than 60 inches
- Areas of Spivey soils that have a high content of rock fragments throughout

Similar inclusions:
- Areas of soils that have bedrock at a depth between 40 and 60 inches
- Small areas of soils that do not have a dark surface horizon

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
- Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability: Poorly suited
Management concerns and measures:
- Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on steep pastures and hayland.
- Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Well suited
Management concerns and measures:
- The use of equipment can cause excessive rutting or miring when the soil is wet. The use of equipment can be delayed until the soil is dry, and gravel or other suitable subgrade material can be added to the main roads.
- Plant competition is a concern unless competing vegetation is controlled.
- Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
- The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

UaF—Unaka loam, 35 to 60 percent slopes

Setting

Landscape position: Side slopes and shoulders of mountain ridges
Major uses: Woodland in most areas

Typical Profile

Surface layer:
0 to 6 inches—very dark grayish brown loam

Subsurface layer:
6 to 8 inches—brown loam

Subsoil:
8 to 22 inches—yellowish brown loam

Substratum:
22 to 24 inches—yellowish brown loam
24 inches—schist bedrock

Soil Properties and Features

Permeability: Moderate
Available water capacity: Low
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of Plott soils that have bedrock at a depth of more than 60 inches
• Areas of Spivey soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of soils that have bedrock at a depth between 40 and 60 inches
• Small areas of soils that do not have a dark surface horizon

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because of a severe hazard of erosion and an equipment limitation caused by the slope, crop production is impractical.

Pasture and hay

Suitability for pasture: Poorly suited
Suitability for hay: Unsuited
Management concerns and measures:
• Good pasture management is essential in controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the safe operation of equipment and the types of equipment that may be used.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and eastern white pine.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and depth to bedrock. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

UcG—Unicoi-Rock outcrop complex, 50 to 80 percent slopes

Setting

Landscape position: Shoulders and side slopes of mountain ridges
Major uses: Woodland in most areas

Composition

Unicoi soil: Averaging about 60 percent of map units, but ranging between 45 and 75 percent of each mapped area
Rock outcrop: Averaging about 30 percent of map units, but ranging between 15 and 45 percent of each mapped area

Typical Profile

Unicoi

Surface layer:
0 to 2 inches—slightly decomposed forest litter
2 to 3 inches—very dark grayish brown cobbly sandy loam

Subsurface layer:
3 to 7 inches—brown cobbly sandy loam

Subsoil:
7 to 18 inches—yellowish brown very cobbly sandy loam

Substratum:
18 inches—metasandstone bedrock

Rock outcrop

Sandstone rock outcrops occur as individual rocks, ledges, or bluffs. Some loose stones or boulders also occur scattered on the soil surface in some areas.

Properties and Features of the Unicoi Soil

Permeability: Moderately rapid
Available water capacity: Very low
High water table: At a depth of more than 6 feet
Drainage class: Somewhat excessively drained
Flood hazard: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 7 to 20 inches

Inclusions

Contrasting inclusions:
• Small areas of Ditney soils that have fewer rock fragments than the Unicoi soil and have bedrock at a depth of more than 20 inches

Similar inclusions:
• Areas of Cataska soils that are underlain by siltstone bedrock

Use and Management

Cropland

Suitability: Unsuited
Management concerns and measures:
• Because areas of this map unit are so steep, droughty, and rocky, agricultural production of any type is virtually prohibited.

Pasture and hay

Suitability: Unsuited
Management concerns and measures:
• Because of a moisture deficiency caused by the limited depth to bedrock and rocks in the soil profile and because of limitations affecting equipment caused by the rock outcrops and extremely steep slopes, the establishment and maintenance of hay or pasture is very difficult.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The slope creates a severe erosion hazard during harvesting and reforestation.
• The slope and rock outcrops limit the safe operation of equipment and the types of equipment that may be used.
• Because of the shallow depth to bedrock, there is a windthrow hazard in established stands and a susceptibility to seedling mortality due to an inadequate moisture supply.
• Virginia pine is suitable for planting.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The slope, shallow depth to bedrock, and large stones in the soil are limitations that are extremely difficult to overcome.

Interpretive Group

Land capability classification: 7s

UnB—Unison loam, 2 to 5 percent slopes

Setting

Landscape position: Stream terraces and footslopes
Major uses: Crops, hay, or pasture in most areas

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown loam

Subsoil:
8 to 33 inches—yellowish brown and strong brown clay
33 to 49 inches—strong brown clay loam

Substratum:
49 to 62 inches—yellowish red loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Similar inclusions:
• Small areas of Waynesboro soils that have redder colors in the subsoil
• Areas of Shady soils that have more sand and less clay in the subsoil

Use and Management

Cropland

Suitability: Well suited
Management concerns and measures:
• This soil is suited to all of the crops, grasses, and legumes that are adapted to the local climate.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration rates, and maintain soil tilth.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• This soil has few limitations affecting pasture and hayland.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and black walnut.

Urban development

Suitability: Moderately suited
Management concerns and measures:
• The main limitations affecting most urban uses are the high clay content and the moderate shrink-swell potential in the subsoil. These limitations can cause problems for excavations, some sanitary facilities, and the construction of footers and basements. Careful design and construction may minimize the hazards.

Interpretive Group

Land capability classification: 2e

UnC—Unison loam, 5 to 12 percent slopes

Setting

Landscape position: Stream terraces and footslopes
Major uses: Crops, hay, or pasture in most areas

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown loam

Subsoil:
8 to 33 inches—yellowish brown and strong brown clay
33 to 49 inches—strong brown clay loam

Substratum:
49 to 62 inches—yellowish red loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid to moderately acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Similar inclusions:
• Small areas of Waynesboro soils that have redder colors in the subsoil
• Areas of Shady soils that have more sand and less clay in the subsoil

Use and Management

Cropland

Suitability: Moderately suited
Management concerns and measures:
• Erosion is a moderate hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration rates, and maintain soil tilth.
• Regular crop rotation is necessary in most sloping areas.
• Terraces, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• This soil has few limitations afffecting pasture and hayland.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and black walnut.

Urban development

Suitability: Moderately suited
Management concerns and measures:
• The limitations affecting most urban uses are the high clay content and moderate shrink-swell potential of the subsoil. These features can cause problems for excavations, some sanitary facilities, and the construction of footers and basements. Careful design and construction may minimize the hazards.
• The slope is also a limitation. It can often be

overcome by the adequate design of structures and facilities.

Interpretive Group

Land capability classification: 3e

UuC—Unison-Urban land complex, 5 to 12 percent slopes

Setting

Landscape position: Stream terraces and footslopes that are commonly leveled, smoothed, or filled
Major uses: Residential and commercial areas

Composition

Unison soil: Averaging about 50 percent of map units, but ranging between 40 and 60 percent of each mapped area
Urban land: Averaging about 40 percent of map units, but ranging between 30 and 50 percent of each mapped area

Typical Profile

Unison

Surface layer:
0 to 8 inches—dark yellowish brown loam

Subsoil:
8 to 33 inches—yellowish brown and strong brown clay
33 to 49 inches—strong brown clay loam

Substratum:
49 to 62 inches—yellowish red loam

Urban land

Urban land is mostly covered by streets, parking lots, buildings, and other structures common to urban areas.

Use and Management

Because areas of this map unit have been manipulated and disturbed by development and construction activities, onsite investigation is recommended before making land use decisions.

Agriculture and woodland management are generally not practical in areas that are this intensively developed.

Interpretive Group

Land capability classification: None assigned

W—Water

Setting

This map unit consists of small to large constructed or natural bodies of water. It includes small tributaries, creeks, and rivers. It is throughout the survey area. This unit makes up 4,500 acres in Carter County. Individual areas are irregular in shape and range from 3 to more than 89 acres in size.

Composition

This map unit includes small ponds and portions of large impoundments and moderate-sized impoundments, such as Watauga Lake and Wilbur Lake. Several major rivers and large streams flow through the survey area. They include the Watauga, Elk, and Doe Rivers.

Use and Management

This map unit is used for fishing, canoeing, and other recreational activities; as a source of municipal water storage; and for fire protection. This map unit is not assigned a land capability classification.

WaE—Wayah-Burton complex, windswept, 15 to 30 percent slopes, stony

Setting

Landscape position: Shoulders and sides slopes of mountain ridges at high elevations
Major uses: Woodland in most areas

Composition

Wayah soil: Averaging about 50 percent of map units, but ranging between 40 and 60 percent of each mapped area
Burton soil: Averaging about 40 percent of map units, but ranging between 30 and 50 percent of each mapped area

Typical Profile

Wayah

Surface layer:
0 to 1 inch—mostly decomposed forest litter
1 to 4 inches—very dark brown loam
4 to 16 inches—dark brown loam

Subsurface layer:
16 to 23 inches—strong brown loam

Subsoil:
23 to 32 inches—strong brown loam
32 to 49 inches—strong brown fine sandy loam

Substratum:
49 to 55 inches—strong brown fine sandy loam
55 to 65 inches—multicolored saprolite that crushes to fine sandy loam
65 inches—multicolored, partly consolidated, weathered bedrock

Burton

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 14 inches—black loam

Subsoil:
14 to 24 inches—dark yellowish brown loam

Substratum:
24 inches—hard gneiss bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Wayah—moderate; Burton—low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: Wayah—more than 60 inches; Burton—20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Plott soils that have a warmer temperature regime due to their lower elevations
• Areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland, pasture, and hay

Suitability: Unsuited
Management concerns and measures:
• Because areas of this map unit are so steep, cold, and droughty, agricultural production of any type is virtually prohibited.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• Because of the depth to bedrock of the Burton soil, there is a windthrow hazard in established stands.
• Seedling mortality is a concern because of the cold, droughty climate of the map unit.
• The slope causes an erosion hazard during harvesting and reforestation and can limit the operation of equipment.
• Because trees at high, frigid, exposed elevations are susceptible to severe wind and frost damage, productivity is substantially limited.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the depth to bedrock of the Burton soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 6e

WaF—Wayah-Burton complex, windswept, 30 to 50 percent slopes, very stony

Setting

Landscape position: Side slopes of mountain ridges at high elevations
Major uses: Woodland in most areas

Composition

Wayah soil: Averaging about 50 percent of map units, but ranging between 40 and 60 percent of each mapped area
Burton soil: Averaging about 40 percent of map units, but ranging between 30 and 50 percent of each mapped area

Typical Profile

Wayah

Surface layer:
0 to 1 inch—mostly decomposed forest litter
1 to 4 inches—very dark brown loam
4 to 16 inches—dark brown loam

Subsurface layer:
16 to 23 inches—strong brown loam

Subsoil:
23 to 32 inches—strong brown loam
32 to 49 inches—strong brown fine sandy loam

Substratum:
49 to 55 inches—strong brown fine sandy loam
55 to 65 inches—multicolored saprolite that crushes to fine sandy loam

65 inches—multicolored, partly consolidated, weathered bedrock

Burton

Surface layer:
0 to 1 inch—partially decomposed forest litter
1 to 14 inches—black loam

Subsoil:
14 to 24 inches—dark yellowish brown loam

Substratum:
24 inches—hard gneiss bedrock

Soil Properties and Features

Permeability: Moderately rapid
Available water capacity: Wayah—moderate; Burton—low or moderate
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: Wayah—more than 60 inches; Burton—20 to 40 inches

Inclusions

Contrasting inclusions:
• Small areas of soils that have a high content of rock fragments throughout

Similar inclusions:
• Areas of Plott soils that have a warmer temperature regime due to their lower elevations
• Areas of soils that have bedrock at a depth between 40 and 60 inches

Use and Management

Cropland, pasture, and hay

Suitability: Unsuited
Management concerns and measures:
• Because areas of this map unit are so steep, cold, and droughty, agricultural production of any type is virtually prohibited.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• Because of the depth to bedrock of the Burton soil, there is a windthrow hazard in established stands.
• Seedling mortality is a concern because of the cold, droughty climate of the map unit.
• The slope causes a severe erosion hazard during harvesting and reforestation and limits the safe operation of equipment.
• Because trees at high, frigid, exposed elevations are susceptible to severe wind and frost damage, productivity is substantially limited.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitations affecting most urban uses are the slope and the depth to bedrock of the Burton soil. Because of the severity of the limitations, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 7e

WbC—Waynesboro loam, 5 to 12 percent slopes

Setting

Landscape position: High stream terraces
Major uses: Hay, pasture, or crop production in most areas

Typical Profile

Surface layer:
0 to 5 inches—brown loam

Subsurface layer:
5 to 11 inches—brown clay loam

Subsoil:
11 to 32 inches—yellowish red clay
32 to 60 inches—yellowish red clay loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Similar inclusions:
• Small areas of Unison soils that have browner colors in the subsoil
• Areas of soils that have redder colors throughout

Use and Management

Cropland

Suitability: Moderately suited

Management concerns and measures:
• Erosion is a moderate hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration rates, and maintain soil tilth.
• Regular crop rotation is necessary in most sloping areas.
• Terraces, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Well suited
Management concerns and measures:
• This soil has few limitations affecting pasture and hayland.

Woodland

Suitability: Well suited
Management concerns and measures:
• Plant competition is the only significant management concern.
• Seeds and seedlings grow well if competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and black walnut.

Urban development

Suitability: Moderately suited
Management concerns and measures:
• The main limitations are the slope and the clayey subsoil.
• Specially designing structures and facilities can often overcome the soil limitations.

Interpretive Group

Land capability classification: 3e

WbD2—Waynesboro loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: High stream terraces
Major uses: Hay, pasture, or crop production in most areas

Typical Profile

Surface layer:
0 to 5 inches—brown loam

Subsurface layer:
5 to 11 inches—brown clay loam

Subsoil:
11 to 32 inches—yellowish red clay
32 to 60 inches—yellowish red clay loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: At a depth of more than 6 feet
Drainage class: Well drained
Flood hazard: None
Reaction: Very strongly acid or strongly acid, except in limed areas
Depth to bedrock: More than 60 inches

Inclusions

Similar inclusions:
• Small areas of Unison soils that have browner colors in the subsoil
• Areas of soils that have redder colors throughout

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• Erosion is a severe hazard if cultivated crops are grown.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration rates, and maintain soil tilth.
• Contour strips, grassed waterways, field borders, and filter strips help to prevent the sediment in runoff water from entering streams and bodies of water.

Pasture and hay

Suitability: Moderately suited
Management concerns and measures:
• Ensuring proper fertility and maintaining an adequate stand help to increase production and minimize sediment and nutrient runoff on moderately steep pastures and hayland.
• Good pasture management is recommended for controlling erosion and maintaining productivity. It includes applying lime and fertilizer according to soil test recommendations, weed control, and prevention of overgrazing.

Woodland

Suitability: Moderately suited
Management concerns and measures:
• The slope creates an erosion hazard during harvesting and reforestation and limits the operation of equipment.

• Equipment tracks or tires can cause rutting or miring during rainy periods, especially where the soil has eroded to the subsoil. The use of equipment can be delayed until the soil is dry, and gravel or other suitable subgrade material can be added to the main roads.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and black walnut.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The main limitation affecting most urban uses is the slope. Because of the severity of this limitation, there would be considerable expense in designing and building structures or facilities that function properly.

Interpretive Group

Land capability classification: 4e

We—Wehadkee fine sandy loam, occasionally flooded

Setting

Landscape position: Flood plains along streams draining from the mountains
Major uses: Hay or pasture in most areas

Typical Profile

Surface layer:
0 to 7 inches—dark grayish brown fine sandy loam

Subsoil:
7 to 19 inches—dark grayish brown loam

Substratum:
19 to 60 inches—olive gray loam

Soil Properties and Features

Permeability: Moderate
Available water capacity: High
High water table: Apparent, at a depth of 0 to 1 foot from November to May
Drainage class: Poorly drained
Flood hazard: Occasional for brief duration from November to June
Reaction: Very strongly acid to neutral
Depth to bedrock: More than 60 inches

Inclusions

Contrasting inclusions:
• Areas of soils that are well drained or moderately well drained

Similar inclusions:
• Areas of soils that have more clay in the subsoil

Use and Management

Cropland

Suitability: Poorly suited
Management concerns and measures:
• The flood hazard and the wetness in the root zone are the major limitations affecting crop production.
• The wetness delays planting or hinders harvesting operations in most years.

Pasture and hay

Suitability for pasture: Moderately suited
Suitability for hay: Poorly suited
Management concerns and measures:
• Permitting grazing when the soil is saturated can cause compaction of the soil surface, which results in slower infiltration rates and loss of the stand.
• The wetness hinders hay cutting operations in most years.
• Plant species that can tolerate wetness and flooding are best suited.

Woodland

Suitability: Poorly suited
Management concerns and measures:
• The use of equipment can cause excessive rutting or miring when the soil is wet. The use of equipment can be delayed until the soil is drier, and gravel or other suitable subgrade material can be added to the main roads.
• Susceptibility to windthrow is a hazard because of the shallow root zone caused by the high water table. This hazard may be minimized by using a carefully regulated thinning program.
• Seedling mortality due to flooding is a management concern.
• Plant competition is a concern unless competing vegetation is controlled.
• Trees suitable for planting include yellow-poplar and sweetgum.

Urban development

Suitability: Poorly suited
Management concerns and measures:
• The flooding and wetness are limitations that are extremely difficult to overcome.

Interpretive Group

Land capability classification: 6w

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners or management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

According to data from the Natural Resources Conservation Service, Farm Services Agency, and the Tennessee Agricultural Extension Service, cropland makes up 46,000 acres in Carter County. Of this total, 8,500 acres are harvested cropland and 37,500 acres are in permanent pasture.

Carter County has two types of land area used for crop and pasture production—the mountain and valley sections. Most of the mountainous areas remain in forest consisting of upland oak, yellow-poplar, Virginia pine, white pine, and various minor species. Small areas of pasture occur scattered among the forested areas. Most pasture mixtures include tall fescue and white clover, and fescue, orchardgrass, and red clover are the commonly used hay mixture. The largest acreage of row crops in the valley section is in corn and tobacco. Corn and small grains are grown for hay, silage, or grain. Alfalfa hay is also common in parts of the valley where soils are suitable for deep-rooted crops.

Many of the soils in the survey area are suited to pasture if appropriate pasture management techniques are practiced. Legumes should be seeded with grasses when pastures are established. Pastures should be periodically renovated to keep legumes in the stand. Legumes significantly increase the quality of the pasture. More information on pasture seeding and renovation is available from the local office of the Tennessee Agricultural Extension Service or the Natural Resources Conservation Service.

Braxton, Colvard, Shady, Waynesboro, Unison, and Steadman soils are used for crops and pasture in the valley section of the county. Lonon and Keener soils are used for hay and pasture in the Blue Ridge area. Erosion-control measures, such as contouring, stripcropping, conservation tillage, filter strips, crop residue management, and conservation cropping systems, should be used on agricultural land to minimize erosion and maintain long-term productivity.

On livestock farms, which require pasture and hay, the use of legume and grass forage crops in crop rotations reduces the hazard of erosion on sloping land, provides nitrogen, and improves tilth for the following crop. Using erosion-control measures improves infiltration rates, conserves moisture, and minimizes surface runoff.

Erosion-control measures help to maintain soil productivity. They also improve water quality by decreasing the amount of sediment and nutrients entering streams and lakes. Information on the design and installation of erosion-control measures and assistance in conservation planning are available from the local office of the Natural Resources Conservation Service.

On all soils in the survey area, additions of lime, fertilizer, and pesticides should be based on soil tests, the need of the crops, expected yield levels, and the label directions provided for the specific products. The soil testing laboratory of the Tennessee Agricultural Extension Service can help in determining the kinds and amounts of lime, fertilizers, and pesticides to apply.

Most of the soils in the survey area that are well suited to crop production are also suited to urban uses. Data on specific soils in this survey can be used to determine future land use priorities. Risk of loss of important farmland should be weighed against limitations and benefits of urban development. The Natural Resources Conservation Service can assist landowners and developers in making Farmland Conversion Impact Ratings under the Farmland Protection Policy Act.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops *(4)*. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals 1 through 8. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have few limitations that restrict their use.

Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class 5 soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation.

Class 7 soils have very severe limitations that make them unsuitable for cultivation.

Class 8 soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w,* or *s,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony.

In class 1 there are no subclasses because the soils of this class have few limitations.

The capability classification of each map unit is given in the section “Detailed Soil Map Units” and in table 5.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it is not frequently flooded during the growing season or is protected from flooding. The slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, or droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

Woodland Management and Productivity

Almost all of Carter County was originally forested. As the county was settled, land was cleared for agricultural purposes. Many of the soils in the county can produce good to excellent stands of commercial hardwood and pulpwood species. In most areas, additional management is needed to achieve the best potential production. Plant competition from undesirable species can be a major concern when establishing a new forest crop. Thinning out mature trees and undesirable species improves production on most established sites. Species conversion and increased stocking rates are also needed in some areas to improve production. Protection from grazing, fire, and disease and insect control also can improve the stands. Common commercial species in the county are yellow-poplar, oak, hickory, maple, white pine, and Virginia pine. Upland oaks, maple, hickory, yellow-poplar, and American chestnut were dominant in the original native forests. All of these species, except

American chestnut, occur in naturally revegetated stands.

Soils vary in their ability to produce trees. The available water capacity and the depth of the root zone greatly affect tree growth. Elevation, aspect, and climate also determine the kinds of trees that can be grown on a site.

The local office of the Natural Resources Conservation Service, the Tennessee Division of Forestry, or the Cooperative Extension Service can help to determine specific forestland management needs.

Woodland owners or forest managers can use table 7 in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for an indicator tree species. The number indicates the volume, in cubic meters per hectare per year, which the indicator species can produce in a pure stand under natural conditions. The number 1 indicates low potential productivity; 2 or 3, moderate; 4 or 5, moderately high; 6 to 8, high; 9 to 11, very high; and 12 to 39, extremely high. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *R* indicates steep slopes; *X*, stoniness or rockiness; *W*, excess water in or on the soil; *T*, toxic substances in the soil; *D*, restricted rooting depth; *C*, clay in the upper part of the soil; *S*, sandy texture; *F*, a high content of rock fragments in the soil; *L*, low strength; and *N*, snowpack. The letter *A* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, F, L, and N.

In table 7, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Erosion hazard is the probability that damage will occur as a result of site preparation and cutting where the soil is exposed along roads, skid trails, and fire lanes and in log-handling areas. Forests that have been burned or overgrazed are also subject to erosion. Ratings of the erosion hazard are based on the percent of the slope. A rating of *slight* indicates that no particular prevention measures are needed under ordinary conditions. A rating of *moderate* indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities.

Equipment limitation reflects the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. The chief characteristics and conditions considered in the ratings are slope, stones on the surface, rock outcrops, soil wetness, and texture of the surface layer. A rating of *slight* indicates that under normal conditions the kind of equipment and season of use are not significantly restricted by soil factors. Soil wetness can restrict equipment use, but the wet period does not exceed 1 month. A rating of *moderate* indicates that equipment use is moderately restricted because of one or more soil factors. If the soil is wet, the wetness restricts equipment use for a period of 1 to 3 months. A rating of *severe* indicates that equipment use is severely restricted either as to the kind of equipment that can be used or the season of use. If the soil is wet, the wetness restricts equipment use for more than 3 months.

Seedling mortality refers to the death of naturally occurring or planted tree seedlings, as influenced by the kinds of soil, soil wetness, or topographic conditions. The factors used in rating the soils for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, effective rooting depth, and slope aspect. A rating of *slight* indicates that seedling mortality is not likely to be a problem under normal conditions. Expected mortality is less than 25 percent. A rating of *moderate* indicates that some problems from seedling mortality can be expected. Extra precautions are advisable. Expected mortality is 25 to 50 percent. A rating of *severe* indicates that seedling mortality is a serious problem. Extra precautions are important. Replanting may be necessary. Expected mortality is more than 50 percent.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Plant competition ratings indicate the degree to which undesirable species are expected to invade and grow when openings are made in the tree canopy. The main factors that affect plant competition are depth to the water table and the available water capacity. A rating of *slight* indicates that competition from undesirable plants is not likely to prevent natural regeneration or suppress the more desirable species. Planted seedlings can become established without undue competition. A rating of *moderate* indicates that competition may delay the establishment of desirable species. Competition may hamper stand development, but it will not prevent the eventual development of fully stocked stands. A rating of *severe* indicates that competition can be expected to prevent regeneration unless precautionary measures are applied.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index* and as a *volume* number. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Volume of wood fiber, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Suggested trees to plant are those that are suitable for commercial production.

Recreation

Carter County has many recreational facilities, several of which are privately owned. Recreation in the area is dominantly related to water areas. The Tennessee Valley Authority provides public picnic areas and boat launching ramps on Watauga Lake.

The Sycamore Shoals and Roan Mountain State Parks and numerous other county and local parks are open to the public. The State and county parks have extensive recreational areas, including campgrounds. Other recreational facilities in the survey area include golf courses, swimming pools, a nature center, and a professional baseball stadium. In addition, the Cherokee National Forest and Appalachian Scenic Trail extend the length of Carter County.

The survey area has high potential for most types of recreational development. Attention should be given to such soil characteristics as depth, permeability, texture, slope, and drainage when recreational facilities are developed.

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 8, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Michael E. Zeman, Biologist, Natural Resources Conservation Service, helped prepare this section.

Wildlife is an important natural resource in Carter County. It provides a source of revenue through sport hunting and recreational opportunities, such as photography and bird-watching. Popular game species include cottontail rabbit, whitetail deer, ruffed grouse, eastern wild turkey, gray squirrels, and fox squirrels.

The whitetail deer is the most popular game animal in the county. Deer populations have grown substantially during the past few years. Harvest records indicate that a six-fold increase in deer numbers occurred from the mid 1970's to 1990. The county had only a few eastern wild turkeys in the 1950's, but nucleus flocks have been restored by the Tennessee Wildlife Resources Agency (TWRA) through restocking efforts and sound management practices. Harvests have tripled since 1984, when huntable populations were considered restored. The forested, mountainous habitat type is excellent for the ruffed grouse. Grouse populations are moderate or high throughout the county. There are two species of cottontail rabbit in the county—the eastern cottontail and the New England cottontail. The eastern cottontail occurs in fair numbers in agricultural areas in the Watauga, Doe River, and Stony Creek valleys. The New England cottontail occurs in low numbers in forests at higher elevations. The county has five species of squirrels—the southern flying squirrel, the northern flying squirrel, the pine squirrel (or "boomer"), the fox squirrel, and the gray squirrel. The gray squirrel is most common, and good to excellent numbers exist in hardwood forests. Fox squirrels are less numerous. They inhabit areas where small woodlots and brushy fencerows occur near cropland. The southern flying squirrel inhabits forests at low elevations. The "boomer" inhabits areas at high elevations in the Unaka Mountains. Small populations of black bear have part of their large home range in the county.

Waterfowl numbers are low. The highest numbers occur around Watauga Lake, where open water provides resting and feeding habitat. Several species of furbearers occur in the county. Wetland furbearers include mink, muskrat, and beaver. Wetland furbearers occur in low or moderate numbers along streams, small lakes, farm ponds, and Watauga Lake. Upland furbearers are abundant throughout the county. Species include bobcat, opossum, raccoon, gray fox, and the striped skunk. Many non-game species are abundant in the county. Various species of songbirds inhabit areas associated with different plant communities. Woodland birds include the Carolina chickadee, tufted titmouse, pileated woodpecker, and wood thrush. Openland birds include robins, meadowlarks, and various sparrows. Common birds of prey include the red-tailed hawk, sparrow hawk, barred owl, and screech owl. Reptiles and amphibians common in the county include the eastern box turtle, skinks, eastern hognose snake, copperhead snake, bullfrogs, and black-bellied salamanders. Common mammals are hispid cotton rats, moles, and other small rodents. The relative abundance of non-game species depends on the type and quality of habitat available.

State and federally listed threatened or endangered wildlife species that may be found in the county include the northern flying squirrel and the longhead darter. Several endangered plant species also grow in the county, including the Blue Ridge goldenrod, spreading avens, and mountain purple bluet. Endangered or threatened wildlife species that migrate through the county include the bald eagle, peregrine falcon, osprey, and sharp-shinned hawk.

The county has some soil types suitable for impounding water with embankment ponds and some suitable for pit-type ponds. Many of the soils have limitations, including seepage, piping, and slope. Some ponds are stocked for recreational fishing with rainbow trout, largemouth bass, bluegill sunfish, or channel catfish. Water quality in ponds is typically acidic, which limits fish production. The largest lake in the county is Watauga Lake, a 6,430-acre reservoir. Popular sport fish in Watauga Lake include smallmouth bass, largemouth bass, crappie, channel catfish, bluegill sunfish, striped bass, and walleye.

Carter County has a total of 85.2 miles of warm-water streams, which provide about 210 acres of aquatic habitat. Most streams in the county are cold enough to support trout. Common fish species in streams include smallmouth bass, rock bass, bluegill sunfish, green sunfish, channel catfish, and several species of darters and minnows. Rainbow trout are stocked in several streams by TWRA, usually from March through June. Because of the cooler water temperatures, most streams are only moderately productive and have fair populations of warm-water fish.

A few small, cold-water streams at the higher elevations in the mountains can support the only indigenous trout of Tennessee, the brook trout. However, brown and rainbow trout now occupy most suitable brook trout habitat in the county. Watauga Lake has a cold, well-oxygenated understory that is suitable for trout, and rainbows have been stocked. Because of this overstory-understory condition, the tailwater section of the Watauga River below Wilbur Dam is also suitable for trout and is periodically stocked with rainbow trout.

The county has some cold-water aquaculture. Generally, the terrain is steep and most soils are unsuitable for extensive pond construction. There is, however, some commercial trout culture and minnow production. Where high spring flows occur, potential for commercial trout production is high because of good water quality.

There are very few wetlands remaining in Carter County, excluding artificial wetlands, such as upland ponds. The wetlands that do exist are primarily wooded bottomland areas on Wehadkee or Bloomingdale soils. Bottomland hardwoods provide some of the most productive wildlife habitat in the county. Bottomland hardwoods improve the water quality of streams by removing nutrients, trapping sediment from runoff, lowering water temperatures through the shading of streams, and providing leaf litter that feeds aquatic insects.

Conservation practices can improve or provide quality wildlife habitat. On cropland, planned crop rotations and crop residue use can provide food and needed winter cover for many species of wildlife. Deferred grazing by livestock and fencing can protect food plots, nesting cover, and even fish habitat by providing stream protection. Field borders and filter strips along streams can protect water quality and provide food, cover, and travel lanes for many species. Selective thinning of woodlands can protect den and quality mast-producing trees. Other practices that can improve wildlife habitat include wildlife upland habitat management, wildlife wetland habitat management, fish pond management, pasture and hayland management, livestock exclusion, and woodland improvement.

Some common practices are harmful to wildlife. They include indiscriminate burning or use of chemicals, heavy grazing, clean mowing early in the growing (nesting) season, clean fall plowing, extensive clear cutting of timber, draining wetlands, and the removal of den and mast-producing trees.

Technical assistance in the planning or application of wildlife conservation practices is available from the local office of the Natural Resources Conservation Service, the University of Tennessee Agricultural Extension Service, the Tennessee Wildlife Resources Agency, or the Tennessee Division of Forestry.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting the appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, oats, soybeans, and grain sorghum.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are tall fescue, orchardgrass, annual lespedeza, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, panicum, carpetgrass, switchgrass, and greenbrier.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, hawthorn, dogwood, hickory, and blackberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are shrub lespedeza, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and eastern redcedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds. Examples of shallow water plants are coontail, common duckweed, spatterdock, cattail, water lily, arrowhead, and water milfoil.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the “Soil Properties” section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations.

For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, or a very firm dense layer, stone content, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and shrinking and swelling can cause the movement of footings. A high water table, depth to bedrock, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock, and the available water capacity in the upper 40 inches affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 11 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock, flooding, and large stones.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. Slope and bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, and soil reaction affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as *probable* or *improbable* sources of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings. The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, and bedrock.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel or stones, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel or stones, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content.

Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table and permeability of the aquifer. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; and susceptibility to flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage may be adversely affected by acidity. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. Low available water capacity, restricted rooting depth, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical Properties

Table 15 shows estimates of some physical properties that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- bar or $^1/_{10}$-bar tension (33kPa or 10 kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factors are shown in table 15 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Chemical Properties

Table 16 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Soil Features

Table 17 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Water Features

Table 18 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 18 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(5, 7)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, reaction, and clay activity. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, mixed, thermic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” *(8)*. Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” *(5)* And in “Keys to Soil Taxonomy” *(7)*. Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section “Detailed Soil Map Units.”

Ashe Series

Depth class: Moderately deep
Drainage class: Somewhat excessively drained
Slope range: Moderately steep to extremely steep (15 to 95 percent)
Landscape position: Mountain crests, shoulders, and side slopes
Parent material: Residuum weathered from crystalline rocks, affected by soil creep in the upper part in some areas

Typical Pedon

Ashe sandy loam in an area of Chestnut-Ashe complex, 30 to 50 percent slopes, very stony; from U.S. Highway 19E in the Roan Mountain community, 7.2 miles south on State Route 143, about 1,600 feet south, 72 degrees west on Laurel Spur:

Oe—0 to 2 inches; partially decomposed forest litter.

A—2 to 8 inches; very dark grayish brown (10YR 3/2) sandy loam; moderate medium granular structure; very friable; many fine and medium roots; 10 percent gravel; few fine flakes of mica; strongly acid; abrupt smooth boundary.

Bw1—8 to 15 inches; dark yellowish brown (10YR 4/4) fine sandy loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak fine subangular block structure; friable; common fine and medium roots; 15 percent gravel; few fine flakes of mica; strongly acid; clear smooth boundary.

Bw2—15 to 32 inches; yellowish brown (10YR 5/6) gravelly fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 30 percent gravel; few fine flakes of mica; strongly acid; abrupt wavy boundary.

R—32 inches; granite bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches to hard bedrock

Content and size of rock fragments: 15 to 35 percent; gravel, cobbles, or stones

Reaction: Very strongly acid to moderately acid, except in limed areas

Other characteristics: Few or common flakes of mica throughout the profile

A horizon:

Hue—10YR or 2.5Y
Value—3 or 4
Chroma—2 to 6
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

Bw horizon:

Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

R layer:

Texture—commonly tilted, jointed, and fractured hard crystalline rock

Balsam Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Steep and very steep (30 to 50 percent)
Landscape position: Mountain coves at high elevations
Parent material: Colluvium weathered from crystalline rocks

Typical Pedon

Balsam very cobbly loam, windswept, 30 to 50 percent slopes, extremely stony; on Roan Mountain, below Colton's Cliff, 2,500 feet north, 10 degrees east from the parking area at Toll House Gap:

A—0 to 12 inches; very dark brown (10YR 2/2) very cobbly loam; moderate medium granular structure; very friable; many fine and medium roots; 40 percent cobbles, gravel, and stones; few fine flakes of mica; strongly acid; clear irregular boundary.

BA—12 to 22 inches; dark yellowish brown (10YR 4/4) very cobbly loam; weak medium subangular structure; friable; many fine, medium, and coarse roots; 45 percent cobbles and gravel; few fine flakes of mica; strongly acid; clear wavy boundary.

Bw1—22 to 36 inches; brown (7.5YR 4/4) very cobbly loam; weak medium subangular blocky structure; friable; many fine, medium, and coarse roots; 40 percent cobbles and gravel; few fine flakes of mica; strongly acid; gradual wavy boundary.

Bw2—36 to 48 inches; dark yellowish brown (10YR 4/4) very cobbly loam; weak medium subangular blocky structure; friable; common fine and medium roots; 40 percent cobbles and gravel; few fine flakes of mica; strongly acid; gradual wavy boundary.

C—48 to 60 inches; yellowish brown (10YR 5/4) very cobbly fine sandy loam; massive; friable; few fine and medium roots; 60 percent cobbles and gravel; few fine flakes of mica; strongly acid.

Range in Characteristics

Depth to bedrock: More than 72 inches

Content and size of rock fragments: 20 to 80 percent; gravel, cobbles, stones, or boulders throughout the profile; size and content typically increase as depth increases

Reaction: Extremely acid to moderately acid

Other characteristics: Few or common flakes of mica throughout the profile; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

BA horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—4 to 8
Mottles—occurring in some pedons; in shades of red, brown, and olive
Texture of fine-earth fraction—similar to that of the A horizon

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture of fine-earth fraction—loam or fine sandy loam

C horizon:
Color—variable
Texture—largely unaltered colluvium; fine sandy loam, sandy loam, or loamy sand in the fine-earth fraction

Bellamy Series

Depth class: Very deep
Drainage class: Moderately well drained
Slope range: Gently sloping (2 to 5 percent)
Landscape position: Low stream terraces
Parent material: Loamy colluvium and alluvium

Typical Pedon

Bellamy loam, 2 to 5 percent slopes; in Sullivan County, Tennessee; from the intersection of Highway 93 and Murrill Road, 600 feet north, 30 degrees west. (This pedon is in Sullivan County, where Bellamy soils occur extensively. The extent of this soil type in Carter County is limited to a small area adjoining Sullivan County. Data from the soil survey of Sullivan County were used to represent the Bellamy soils in Carter County.)

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; very friable; many very fine and fine roots; very strongly acid; clear smooth boundary.

A—5 to 10 inches; dark yellowish brown (10YR 4/4) loam; weak medium granular structure; friable; many very fine and fine roots; strongly acid; abrupt smooth boundary.

Bw—10 to 19 inches; brownish yellow (10YR 6/6) loam; moderate medium subangular blocky structure; firm; common very fine roots; many fine and common medium tubular pores; strongly acid; gradual wavy boundary.

Btx—19 to 32 inches; brownish yellow (10YR 6/6) loam; common coarse faint light brownish gray (10YR 6/2) and few fine prominent yellowish red (5YR 5/8) mottles; weak coarse prismatic structure; firm; brittle in 40 to 60 percent of the volume; few very fine roots; common fine and medium tubular pores; strongly acid; gradual wavy boundary.

Bt1—32 to 41 inches; brownish yellow (10YR 6/6) clay loam; common fine faint light yellowish brown (10YR 6/4), common coarse faint light brownish gray (10YR 6/2), and many fine prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few very fine roots; common fine and medium tubular pores; few faint clay films on faces of peds and lining pores; 5 percent gravel; very strongly acid; gradual wavy boundary.

Bt2—41 to 54 inches; mottled light yellowish brown (10YR 6/4), gray (10YR 6/1), and yellowish red (5YR 5/8) clay loam; moderate medium subangular blocky structure; friable; few fine tubular pores; few faint clay films on faces of peds and lining pores; very strongly acid; gradual wavy boundary.

BC—54 to 72 inches; yellowish brown (10YR 5/4) sandy clay loam; common fine distinct strong brown (7.5YR 5/8) and common fine prominent yellowish red (5YR 5/8) mottles; massive; friable; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content and size of rock fragments: 0 to 5 percent throughout the profile; mainly small rounded gravel
Reaction: Very strongly acid to slightly acid
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

Ap or A horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—3 or 4
Texture of fine-earth fraction—loam or silt loam

Bw horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 6
Texture—loam or silt loam

Bt and Btx horizons:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 8
Mottles—few or common in shades of gray, brown, or red
Texture of fine-earth fraction—clay loam or loam

BC horizon:
Color—horizon has same colors as the Bt and Btx horizons or is mottled in shades or gray, brown, and red
Texture—sandy clay loam or clay loam

Bloomingdale Series

Depth class: Very deep
Drainage class: Poorly drained
Slope range: Nearly level (0 to 2 percent)
Landscape position: Flood plains and depressions
Parent material: Mixed alluvium weathered from limestone and shale

Typical Pedon

Bloomingdale silty clay loam, occasionally flooded; north on Lick Creek Road from the Watauga community to the Shell Hollow Road intersection, 300 feet south, 55 degrees east from the intersection:

Ap—0 to 6 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate fine subangular blocky structure; very friable; many fine roots; common fine pores; few fine black (10YR 2/1) manganese concentrations; common medium faint grayish brown (2.5Y 5/2) iron depletions; common medium distinct dark yellowish brown (10YR 3/4) iron accumulations; slightly acid; clear smooth boundary.

Bg1—6 to 19 inches; gray (N 5/0) silty clay; weak coarse subangular blocky structure; friable; common fine roots; common fine pores; many fine and medium black (10YR 2/1) manganese concentrations; many medium faint light olive brown (2.5Y 5/4) and olive yellow (10YR 6/8) iron accumulations; moderately acid; gradual smooth boundary.

Bg2—19 to 40 inches; light brownish gray (2.5Y 6/2) silty clay; weak coarse subangular blocky structure; firm; few fine roots; few medium pores; 2 percent channers; many medium black (10YR 2/1) manganese concentrations; many fine distinct gray (N 6/0) iron depletions; common medium distinct yellowish brown (10YR 5/8) and common medium prominent strong brown (7.5YR 5/8) iron accumulations; moderately acid; clear smooth boundary.

Cg1—40 to 52 inches; gray (N 6/0) clay; massive; firm; 5 percent channers; many medium black (10YR 2/1) manganese concentrations; many medium distinct light olive brown (2.5Y 5/4) and common medium distinct yellowish brown (10YR 5/8) iron accumulations; moderately acid; gradual smooth boundary.

Cg2—52 to 60 inches; gray (N 5/0) clay; massive; firm; common medium black (10YR 2/1) manganese concentrations; many fine distinct light olive brown (2.5Y 5/4) iron accumulations; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: As much as 5 percent in the upper 40 inches and as much as 20 percent below a depth of 40 inches
Reaction: Moderately acid to moderately alkaline

A horizon:
Hue—10YR to 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture of fine-earth fraction—silty clay loam, silt loam, or loam
Redoximorphic features—in shades of brown or gray

Bg horizon:
Color—horizon has hue of 7.5YR to 5Y, value of 5 or 6, and chroma of 1; has hue of 7.5YR to 5Y, value of 6, and chroma of 2; or is neutral in hue and has chroma of 5 or 6
Texture of fine-earth fraction—silty clay loam, silty clay, or clay
Redoximorphic features—in shades of gray or brown

Cg horizon:
Color—horizon has hue of 7.5YR to 5Y, value of 5 or 6, and chroma of 1; has hue of 7.5YR to 5Y, value of 6, and chroma of 2; or is neutral in hue and has value of 5 to 7
Texture of fine-earth fraction—silty clay, silty clay loam, or clay
Redoximorphic features—in shades of gray, brown, or red

Braddock Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Sloping and moderately steep (5 to 20 percent)
Landscape position: High stream terraces, footslopes, and colluvial fans
Parent material: Alluvium and colluvium weathered dominantly from crystalline rocks

Typical Pedon

Braddock loam, 12 to 20 percent slopes; in the Little Milligan community, above Watauga Lake Shore, 3,000 feet north, 67 degrees east from the end of Moody Road:

Ap—0 to 4 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; very friable; many very fine and fine and common medium roots; 15 percent gravel; slightly acid; abrupt smooth boundary.
Bt1—4 to 9 inches; yellowish red (5YR 4/6) clay loam; weak medium subangular blocky structure; friable; many fine and medium roots; common fine and medium pores; few faint clay films on faces of some peds; 10 percent gravel; moderately acid; clear smooth boundary.
Bt2—9 to 23 inches; red (2.5YR 4/8) clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; common fine and medium pores; common distinct clay films on faces of peds; strongly acid; gradual smooth boundary.
Bt3—23 to 52 inches; red (2.5YR 4/8) clay loam; weak medium angular blocky structure; friable; few very fine, fine, and medium roots; common fine and medium pores; common distinct clay films on faces of peds; strongly acid; clear smooth boundary.
2C—52 to 62 inches; yellowish red (5YR 5/8) silty clay loam; common medium faint yellowish red (5YR 4/6) and few fine distinct strong brown (7.5YR 5/7) and brownish yellow (10YR 6/8) mottles; massive; friable; few fine and medium pores; few faint clay films lining some larger pores; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 35 percent above a depth of about 40 inches and 0 to 60 percent below that depth
Reaction: Extremely acid to strongly acid, except in limed areas
Other characteristics: Flakes of mica in some pedons; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A or Ap horizon:
Hue—7.5YR or 10YR; in eroded areas, hue ranges to 5YR
Value—2 to 5
Chroma—1 to 6
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam; in eroded areas, texture ranges to clay loam or sandy clay loam

Bt horizon:
Hue—2.5YR or 10R
Value—4 or 5
Chroma—6 or 8
Texture of fine-earth fraction—clay loam, sandy clay, or clay
Other features—value of 3 and/or hue of 5YR occur in individual subhorizons in some pedons but do not make up the entire horizon; in some pedons, the lower part of the horizon is profusely mottled and does not have a dominant matrix color

2C horizon (if it occurs):
Hue—2.5YR to 5YR
Value—4 to 6
Chroma—6 or 8
Mottles—typically occurring; in shades of brown, red, yellow, or gray
Texture of fine-earth fraction—silty clay loam, clay loam, or clay

Braxton Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Sloping to very steep (5 to 50 percent)
Landscape position: Upland ridge crests, shoulders, and side slopes
Parent material: Residuum from limestone, covered in places by a mantle of alluvium or valley fill

Typical Pedon

Braxton silt loam, 20 to 35 percent slopes, eroded; in Elizabethton, 2,300 feet north, 30 degrees east from East Side School on Lynn Mountain:

A—0 to 4 inches; brown (10YR 4/3) silt loam; many fine faint very dark grayish brown (10YR 3/2) mottles; weak fine granular structure; very friable;

many fine, medium, and coarse roots; 2 percent gravel; strongly acid; abrupt smooth boundary.

BA—4 to 7 inches; brown (7.5YR 4/4) silty clay loam; common fine faint brown (10YR 4/3) mottles; weak fine subangular blocky structure; very friable; many fine, medium, and coarse roots; many fine and medium pores; 2 percent gravel; few fine black concretions; strongly acid; gradual smooth boundary.

Bt1—7 to 16 inches; yellowish red (5YR 5/8) silty clay; common medium distinct red (2.5YR 4/8) and reddish yellow (7.5YR 5/8) mottles; moderate fine subangular blocky structure; firm; common fine and medium roots; many fine and medium pores; common distinct clay films on faces of peds and lining larger pores; 2 percent gravel; strongly acid; gradual smooth boundary.

Bt2—16 to 33 inches; yellowish red (5YR 5/8) clay; many fine prominent brownish yellow (10YR 6/8) mottles; strong medium subangular blocky structure; firm; few fine and medium roots; common fine and medium pores; common distinct clay films on faces of peds and lining larger pores; 2 percent gravel; common fine black concretions; strongly acid; gradual smooth boundary.

Bt3—33 to 52 inches; yellowish red (5YR 5/8) clay; many fine distinct red (2.5YR 4/8) and many fine prominent brownish yellow (10YR 6/8) mottles; strong medium subangular blocky structure; very firm; few fine and medium roots; common fine and medium pores; common distinct clay films on faces of peds and lining larger pores; 2 percent gravel; strongly acid; gradual smooth boundary.

Bt4—52 to 62 inches; yellowish red (5YR 5/8) clay; many fine distinct red (2.5YR 4/8) and reddish yellow (7.5YR 6/8) mottles; strong medium subangular blocky structure; very firm; few fine and medium pores; common distinct clay films on faces of peds and lining larger pores; 2 percent gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 30 percent in the surface layer and 0 to 15 percent in the subsoil
Reaction: Strongly acid or moderately acid, except in limed areas; the horizon just above bedrock is slightly acid in some pedons
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A or Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture of fine-earth fraction—silt loam or silty clay loam

BA horizon (if it occurs):
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture of fine-earth fraction—silt loam or silty clay loam

Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—4 to 8
Mottles—occurring in the lower part of the horizon in most pedons; in shades of red or brown
Texture of fine-earth fraction—silty clay or clay; the upper few inches of the horizon are silty clay loam in some pedons

Brookshire Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Steep (20 to 35 percent)
Landscape position: Side slopes of north- and east-facing mountain coves
Parent material: Colluvium derived from metasedimentary rocks

Typical Pedon

Brookshire silt loam, 35 to 65 percent slopes; in Sullivan County, Tennessee; on Dogwood Bench Road, 1,000 feet from Highway 421, about 50 feet south of the road. (This pedon is in Sullivan County, where Brookshire soils occur extensively. It is in a slope unit not recognized in Carter County. The extent of this soil type in Carter County is limited to a small area adjoining Sullivan County. Data from the soil survey of Sullivan County were used to represent the Brookshire soils in Carter County.)

Oi—0 to 1 inch; forest litter of hardwood leaves and twigs.

A1—1 to 6 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; very friable; many fine and medium roots; 10 percent gravel; strongly acid; clear smooth boundary.

A2—6 to 9 inches; dark yellowish brown (10YR 3/3) silt loam; weak medium granular structure; very friable; common fine and medium roots; 12 percent gravel; strongly acid; clear smooth boundary.

Bw1—9 to 18 inches; strong brown (7.5YR 4/6) gravelly silt loam; weak medium subangular blocky structure parting to weak medium granular; friable; common fine and medium and few coarse roots; many fine and medium tubular pores; 15 percent gravel; strongly acid; gradual smooth boundary.
Bw2—18 to 31 inches; strong brown (7.5YR 5/8) gravelly silt loam; weak medium subangular blocky structure parting to weak medium granular; friable; few fine, medium, and coarse roots; many fine and medium tubular pores; 20 percent gravel; strongly acid; gradual smooth boundary.
Bw3—31 to 53 inches; strong brown (7.5YR 5/8) gravelly silt loam; weak medium subangular blocky structure parting to weak medium granular; friable; few fine, medium, and coarse roots; few fine and medium tubular pores; 25 percent gravel and cobbles; strongly acid; gradual smooth boundary.
C—53 to 65 inches; brownish yellow (7.5YR 6/8) cobbly silt loam; massive; friable; 30 percent cobbles and gravel; strongly acid.

Range in Characteristics

Depth to bedrock: 40 to more than 60 inches to hard bedrock
Content and size of rock fragments: 10 to 30 percent throughout the profile; mainly gravel and cobbles
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—3
Chroma—2 or 3
Texture of fine-earth fraction—silt loam or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8
Texture of fine-earth fraction—silt loam or loam

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—silt loam or loam

Burton Series

Depth class: Moderately deep
Drainage class: Well drained
Slope range: Sloping to extremely steep (8 to 95 percent)
Landscape position: Mountain crests, shoulders, and side slopes at high elevations
Parent material: Residuum from crystalline rocks; many areas are affected by soil creep in the upper part

Typical Pedon

Burton loam in an area of Burton-Craggey complex, windswept, 15 to 35 percent slopes, extremely bouldery; on Roan Mountain, 600 feet north of the Roan High Knob bench mark:

Oe—0 to 1 inch; partially decomposed forest litter.
A—1 to 14 inches; black (10YR 2/1) loam; weak fine subangular blocky structure; very friable; few fine and medium roots; 10 percent gravel; common fine flakes of mica; very strongly acid; abrupt smooth boundary.
Bw—14 to 24 inches; dark yellowish brown (10YR 4/6) loam; moderate medium subangular blocky structure; friable; common fine pores; 10 percent cobbles and gravel; common fine flakes of mica; strongly acid; abrupt smooth boundary.
R—24 inches; hard gneiss.

Range in Characteristics

Depth to bedrock: 20 to 40 inches to hard bedrock
Content and size of rock fragments: 0 to 35 percent throughout the profile; gravel, cobbles, or stones
Reaction: Extremely acid to moderately acid
Other characteristics: Few or common flakes of mica throughout the profile; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture of fine-earth fraction—loam or fine sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—3 to 6
Texture of fine-earth fraction—loam or fine sandy loam

Calvin Series

Depth class: Moderately deep
Drainage class: Well drained
Slope range: Moderately steep to very steep (12 to 50 percent)
Landscape position: Upland ridgetops and side slopes
Parent material: Residuum from shale or siltstone

Typical Pedon

Calvin channery silt loam, 35 to 50 percent slopes; in the Keenburg community, 2,000 feet south, 60 degrees east from the intersection of Indian Creek Road and Holston Mountain Road:

A—0 to 6 inches; reddish brown (5YR 5/4) channery silt loam; common medium prominent dark brown (10YR 3/3) mottles; weak very fine granular structure; very friable; many fine and medium roots; 20 percent channers; very strongly acid; clear smooth boundary.

Bw1—6 to 15 inches; reddish brown (5YR 5/3) channery silt loam; moderate fine subangular blocky structure; very friable; common fine and medium roots; common fine pores; 30 percent channers; very strongly acid; clear wavy boundary.

Bw2—15 to 23 inches; reddish brown (5YR 5/3) very channery loam; weak medium subangular blocky structure; friable; common fine and medium roots; common fine pores; 40 percent channers; very strongly acid; gradual wavy boundary.

BC—23 to 29 inches; reddish brown (5YR 5/3) very channery loam; common fine distinct strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; very friable; common fine roots; common fine pores; 50 percent channers; very strongly acid; clear wavy boundary.

C—29 to 36 inches; dusky red (2.5YR 3/2) very channery loam; many medium prominent strong brown (7.5YR 5/8) and brownish yellow (10YR 6/8) mottles; massive; very friable; 60 percent channers; very strongly acid; abrupt wavy boundary.

Cr—36 inches; soft, weathered shale.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Content of rock fragments: 5 to 25 percent in the A horizon, 25 to 55 percent in individual subhorizons of the B horizon, and 40 to 80 percent in the C horizon
Reaction: Very strongly acid to moderately acid throughout the profile
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A or Ap horizon:
Hue—5YR or 7.5YR
Value—2 to 5
Chroma—2 to 4
Texture of fine-earth fraction—silt loam or loam

Bw horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—2 to 8
Texture of fine-earth fraction—silt loam or loam

BC horizon (if it occurs):
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—2 to 8
Texture of fine-earth fraction—silt loam or loam

C horizon:
Hue—2.5YR or 5YR
Value—3 to 5
Chroma—2 to 4
Texture of fine-earth fraction—silt loam or loam

Cataska Series

Depth class: Shallow
Drainage class: Excessively drained
Slope range: Very steep and extremely steep (35 to 80 percent)
Landscape position: Mountain crests, shoulders, and side slopes
Parent material: Residuum from siltstone or metasandstone

Typical Pedon

Cataska channery silt loam, 35 to 50 percent slopes; on Holston Mountain, 2,300 feet south, 18 degrees west from the intersection of Flint Mill Trail and Holston Mountain Trail:

Oi—0 to 1 inch; partially decomposed forest litter of hardwood leaves and twigs.

A—1 to 2 inches; dark brown (10YR 3/3) channery silt loam; weak medium granular structure; very friable; many fine and medium and few coarse roots; 20 percent channers; strongly acid; clear smooth boundary.

BE—2 to 5 inches; yellowish brown (10YR 5/4) channery silt loam; weak medium granular structure; very friable; many fine and medium and few coarse roots; 30 percent channers; strongly acid; gradual smooth boundary.

Bw1—5 to 11 inches; strong brown (7.5YR 5/6) channery silt loam; weak medium subangular blocky structure; friable; common fine and many medium and coarse roots; common fine and medium pores; 45 percent channers; strongly acid; clear wavy boundary.

Bw2—11 to 18 inches; strong brown (7.5YR 5/6) very channery silt loam; weak medium subangular blocky structure; few fine and coarse and common medium roots; few fine pores; 50 percent channers; strongly acid; clear wavy boundary.

Cr—18 inches; fractured, partially weathered siltstone; small amounts of silt loam filling voids and fractures.

Range in Characteristics

Depth to bedrock: 10 to 20 inches to weathered bedrock and 20 inches to 4 feet or more to hard bedrock

Content and size of rock fragments: About 15 to 45 percent in the A horizon and 35 to 80 percent in the Bw horizon; ranging from channers to flagstones

Reaction: Extremely acid to strongly acid

Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—2 to 4
Texture of fine-earth fraction—silt loam or loam

BE horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 to 6
Texture of fine-earth fraction—silt loam or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture of fine-earth fraction—silt loam or loam

Cr layer:
Texture—weathered, tilted siltstone or metasandstone; layer commonly has small amounts of silt loam or loam filling voids and fractures

Chestnut Series

Depth class: Moderately deep
Drainage class: Well drained
Slope range: Moderately steep to extremely steep (15 to 95 percent)
Landscape position: Mountain crests, shoulders, and side slopes
Parent material: Residuum weathered from crystalline rocks; in some areas the upper part of the profile is affected by soil creep

Typical Pedon

Chestnut loam, 35 to 50 percent slopes; 1,500 feet north, 64 degrees west from the intersection of the two trails at Goodwin Field Gap:

A—0 to 1 inch; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; 10 percent gravel; few fine flakes of mica; strongly acid; abrupt smooth boundary.

BA—1 to 8 inches; brown (10YR 4/3) loam; weak fine subangular blocky structure parting to weak medium granular; very friable; many fine and medium and few coarse roots; 5 percent gravel; few fine flakes of mica; strongly acid; clear smooth boundary.

Bw1—8 to 12 inches; yellowish brown (10YR 5/6) loam; weak fine subangular blocky structure; friable; common fine and medium roots; 10 percent gravel; few fine flakes of mica; very strongly acid; gradual wavy boundary.

Bw2—12 to 23 inches; brownish yellow (10YR 6/6) loam; weak fine and medium subangular blocky structure; friable; few fine and medium roots; 10 percent gravel; few fine flakes of mica; very strongly acid; clear wavy boundary.

C—23 to 33 inches; brownish yellow (10YR 6/6) loam; many medium faint gray (10YR 5/1) and many fine faint brown (10YR 5/3) mottles; massive; friable; 5 percent gravel; few fine flakes of mica; very strongly acid; gradual irregular boundary.

Cr—33 inches; weathered granite.

Range in Characteristics

Depth to bedrock: 20 to 40 inches to weathered bedrock

Content of rock fragments: 5 to 35 percent throughout the profile

Reaction: Very strongly acid or strongly acid

Other characteristics: Few or common flakes of mica throughout the profile; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture of fine-earth fraction—loam or fine sandy loam

BA horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—3 to 5

Chroma—3 or 4
Texture of fine-earth fraction—loam or fine sandy loam

Bw horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

C horizon (if it occurs):
Color—similar to the Bw horizon or multicolored
Texture—loam, sandy loam, fine sandy loam, loamy sand, or loamy fine sand

Cr layer:
Texture—weathered bedrock that is partially consolidated but can be removed with difficulty using hand tools

Cleveland Series

Depth class: Shallow
Drainage class: Somewhat excessively drained
Slope range: Extremely steep (50 to 80 percent)
Landscape position: Nose slopes and side slopes of mountain ridges
Parent material: Residuum weathered from crystalline rocks

Typical Pedon

Cleveland sandy loam, 50 to 80 percent slopes; 2,200 feet north, 80 degrees west from the intersection of the two trails at Goodwin Field Gap:

A—0 to 2 inches; very dark grayish brown (10YR 3/2) sandy loam; weak fine granular structure; very friable; many fine and medium and few coarse roots; few fine flakes of mica; strongly acid; abrupt smooth boundary.
Bw—2 to 10 inches; brownish yellow (10YR 6/6) gravelly sandy loam; weak fine subangular blocky structure; very friable; many fine and medium and few coarse roots; 25 percent gravel; few fine flakes of mica; strongly acid; abrupt wavy boundary.
R—10 inches; hard, coarse-grained granite.

Range in Characteristics

Depth to bedrock: 10 to 20 inches to hard bedrock
Content of rock fragments: As much as 35 percent throughout the profile
Reaction: Very strongly acid to moderately acid
Other characteristics: Few or common flakes of mica

A horizon:
Hue—7.5YR or 10YR
Value—2 to 5
Chroma—1 to 4
Texture of fine-earth fraction—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—sandy loam, fine sandy loam, or loam

Colvard Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Nearly level (0 to 3 percent)
Landscape position: Flood plains
Parent material: Mixed alluvium

Typical Pedon

Colvard fine sandy loam, occasionally flooded; from the end of the river bridge at the intersection of Wilbur Dam Road and Grindstaff Road, 400 feet south, just east of the road in the field:

Ap—0 to 9 inches; brown (10YR 4/3) fine sandy loam; few fine faint dark yellowish brown (10YR 3/4) mottles; moderate fine granular structure; very friable; common fine and medium roots; few fine flakes of mica; moderately acid; clear smooth boundary.
C1—9 to 32 inches; dark yellowish brown (10YR 4/4) fine sandy loam; few fine faint brown (10YR 4/3) mottles; massive; very friable; common fine and medium roots; common fine pores; 2 percent gravel; few fine flakes of mica; strongly acid; gradual smooth boundary.
C2—32 to 60 inches; dark yellowish brown (10YR 4/4) fine sandy loam; common fine faint brown (7.5YR 4/4) mottles; single grained; loose; common fine and medium roots; 2 percent gravel; few fine flakes of mica; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 15 percent throughout the profile
Reaction: Strongly acid to slightly alkaline
Other characteristics: Few or common flakes of mica throughout the profile

Ap or A horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 to 4
Texture of fine-earth fraction—sandy loam, fine sandy loam, or loam

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture of fine-earth fraction—sandy loam, fine sandy loam, or loam above a depth of 40 inches
Other features—strata of loamy sand or sand as much as 5 inches thick above a depth of 40 inches in some pedons; the lower part of the horizon may consist of stratified sandy, loamy, gravelly, or cobbly sediments

Craggey Series

Depth class: Shallow
Drainage class: Somewhat excessively drained
Slope range: Sloping to very steep (8 to 50 percent)
Landscape position: Mountain crests and shoulders at high elevations
Parent material: Residuum from crystalline rocks

Typical Pedon

Craggey loam in an area of Burton-Craggey complex, windswept, 15 to 35 percent slopes, extremely bouldery; on Roan Mountain, 800 feet northeast of the Roan High Knob bench mark:

A—0 to 13 inches; black (10YR 2/1) loam; weak fine granular structure; very friable; many fine and few medium roots; 10 percent gravel; very strongly acid; abrupt wavy boundary.
R—13 inches; hard gneiss bedrock.

Range in Characteristics

Depth to bedrock: 10 to 20 inches to hard bedrock
Content and size of rock fragments: 5 to 35 percent; gravel, cobbles, or stones
Reaction: Extremely acid to moderately acid
Other characteristics: Few or common flakes of mica in some pedons

A horizon:
Hue—7.5YR to 10YR
Value—2 or 3
Chroma—1 to 3
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

Bw horizon (overlies the bedrock in some pedons):
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—3 to 6
Texture—same as the A horizon
Thickness—2 to 6 inches

Craigsville Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Nearly level and gently sloping (1 to 5 percent)
Landscape position: Mountain flood plains
Parent material: Coarse textured sediments derived from metasedimentary rocks

Typical Pedon

Craigsville cobbly sandy loam, 1 to 5 percent slopes, frequently flooded; about 1 mile on State Highway 67 from the entrance to Watauga Point Recreation Area to the entrance of a Forest Service road on the right, 500 feet south on the Forest Service road, 50 feet west of the road:

Oa—0 to 1 inch; highly decomposed forest litter.
A—1 to 4 inches; dark grayish brown (10YR 4/2) cobbly sandy loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; 35 percent cobbles and gravel; strongly acid; clear smooth boundary.
BA—4 to 9 inches; dark yellowish brown (10YR 4/4) very cobbly sandy loam; weak medium granular structure; very friable; many fine and medium and few coarse roots; 40 percent cobbles and gravel; strongly acid; clear smooth boundary.
Bw1—9 to 22 inches; yellowish brown (10YR 5/6) very cobbly sandy loam; weak medium subangular blocky structure; friable; common fine and medium and few coarse roots; 50 percent cobbles, stones, and gravel; strongly acid; clear smooth boundary.
Bw2—22 to 40 inches; yellowish brown (10YR 5/6) very cobbly sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; 55 percent cobbles, stones, and gravel; strongly acid; clear smooth boundary.
BC—40 to 63 inches; yellowish brown (10YR 5/6) extremely cobbly sandy loam; weak fine subangular blocky structure; very friable; few fine and medium roots; 70 percent cobbles, stones, and gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Content of rock fragments: 5 to 60 percent in the A horizon and 35 to 70 percent in the B and C horizons
Reaction: Very strongly acid or strongly acid
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 to 4
Texture of fine-earth fraction—sandy loam, fine sandy loam, or loam

BA horizon (if it occurs):
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 to 4
Texture of fine-earth fraction—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—4 to 6
Texture of fine-earth fraction—sandy loam or loam

BC horizon (if it occurs):
Hue—5YR to 10YR
Value—4 or 5
Chroma—4 or 6
Texture of fine-earth fraction—sandy loam or loam

Ditney Series

Depth class: Moderately deep
Drainage class: Well drained
Slope range: Steep to extremely steep (20 to 80 percent)
Landscape position: Mountain ridge crests, shoulders, and side slopes
Parent material: Residuum weathered from metasedimentary rocks

Typical Pedon

Ditney sandy loam, 35 to 50 percent slopes; on Holston Mountain, northwest from the head of Upper Hinkle Branch, about 400 feet south of the Holston Mountain Trail:

A—0 to 3 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; many fine and medium and few coarse roots; 12 percent gravel; strongly acid; clear smooth boundary.
BA—3 to 7 inches; yellowish brown (10YR 5/6) loam; weak medium granular structure; very friable; many fine and medium and few coarse roots; 10 percent gravel; strongly acid; gradual smooth boundary.
Bw1—7 to 18 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; common fine and medium roots; many fine and medium pores; 10 percent gravel and cobbles; very strongly acid; gradual smooth boundary.
Bw2—18 to 24 inches; yellowish brown (10YR 5/6) cobbly loam; weak medium subangular blocky structure; friable; few fine and medium roots; many fine and medium pores; 30 percent cobbles and gravel; very strongly acid; abrupt smooth boundary.
R—24 inches; hard sandstone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Content and size of rock fragments: About 5 to 35 percent throughout the profile; mainly gravel and cobbles
Reaction: Extremely acid to strongly acid
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 4
Texture of fine-earth fraction—sandy loam or loam

BA horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—loam or sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—loam or sandy loam

Edneytown Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Moderately steep (12 to 20 percent)
Landscape position: Crests and shoulders of mountain ridges

Parent material: Residuum weathered from crystalline rocks

Typical Pedon

Edneytown loam, 12 to 20 percent slopes; south from U.S. Highway 321 on Walnut Mountain Road, 3,000 feet past the intersection of Walnut Mountain Road and White Oak Road, 800 feet east of the road:

Oe—0 to 2 inches; partially decomposed organic matter in a mat of fibrous roots.

A—2 to 4 inches; brown (10YR 4/3) loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; 5 percent gravel; strongly acid; abrupt smooth boundary.

BA—4 to 10 inches; yellowish brown (10YR 5/4) loam; weak medium granular structure; very friable; many fine, medium, and coarse roots; 5 percent gravel; strongly acid; clear smooth boundary.

Bt1—10 to 18 inches; yellowish brown (10YR 5/8) clay loam; weak fine subangular blocky structure; friable; many medium and coarse roots; common fine and medium pores; few faint clay films on faces of peds; 15 percent gravel; strongly acid; gradual smooth boundary.

Bt2—18 to 30 inches; yellowish brown (10YR 5/8) clay loam; weak fine and medium subangular blocky structure; friable; common fine and medium and few coarse roots; common fine and medium pores; few faint clay films on faces of peds; 5 percent gravel; strongly acid; abrupt smooth boundary.

BC1—30 to 39 inches; brownish yellow (10YR 6/8) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable; few fine and medium roots; 10 percent gravel; strongly acid; clear smooth boundary.

BC2—39 to 48 inches; reddish yellow (7.5YR 6/8) sandy clay loam; common medium faint pink (7.5YR 7/4) and common medium distinct yellowish brown (10YR 5/8) mottles; weak fine subangular blocky structure; friable; few fine roots; 15 percent gravel; strongly acid; clear smooth boundary.

C—48 to 62 inches; mottled yellowish brown (10YR 5/8), pinkish gray (7.5YR 7/2), strong brown (7.5YR 5/8), and pink (7.5YR 8/4) sandy loam; massive; friable; few fine roots; 10 percent gravel; strongly acid; abrupt wavy boundary.

Cr—62 inches; coarse-grained, rippable, highly weathered granite.

Range in Characteristics

Depth to bedrock: More than 60 inches

Content of rock fragments: 0 to 35 percent in the surface layer and 0 to 15 percent in the B and C horizons

Reaction: Very strongly acid or strongly acid

Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:

Hue—10YR

Value—3 to 6

Chroma—1 to 4

Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

BA horizon (if it occurs):

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture of fine-earth fraction—loam or fine sandy loam

Bt horizon:

Hue—7.5YR or 10YR

Value—5 to 7

Chroma—4 to 8

Texture of fine-earth fraction—clay loam or sandy clay loam

BC horizon (if it occurs):

Hue—7.5YR or 10YR

Value—5 to 7

Chroma—6 or 8

Texture of fine-earth fraction—fine sandy loam, loam, or sandy clay loam

C horizon:

Hue—7.5YR or 10YR

Value—5 to 8

Chroma—3 to 8

Mottles—occurring in many pedons; in shades of brown, red, or white

Texture of fine-earth fraction—sandy loam, fine sandy loam, or loamy sand

Cr layer:

Texture—weathered granite or gneiss that crushes to sandy loam or loamy sand

Edneyville Series

Depth class: Very deep

Drainage class: Well drained

Slope range: Steep to extremely steep (30 to 80 percent)

Landscape position: Mountain ridge crests and side slopes
Parent material: Residuum from crystalline rocks that is affected by soil creep in the upper part in some areas

Typical Pedon

Edneyville fine sandy loam in an area of Edneyville-Chestnut complex, 30 to 50 percent slopes, stony; in Avery County, North Carolina; 7.1 miles north of Newland, North Carolina, on State Route 194, about 8.2 miles north on Secondary Road 1316, about 0.25 mile east on Secondary Road 1312, about 1.5 miles southeast on Beech Mountain Road, 0.4 mile northwest of the road on a side road, 0.15 mile north on the side road, in a road cut. (This pedon is in Avery County, North Carolina, where Edneyville soils occur extensively. Edneyville soils are not extensive in Carter County but are limited to areas near the North Carolina State line. Data from the soil survey of Avery County were used to represent the Edneyville soils in Carter County.)

Oe—0 to 1 inch; partially decomposed leaves and twigs.
A—1 to 4 inches; very dark gray (10YR 3/1) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; 15 percent gravel; few fine flakes of mica; strongly acid; clear wavy boundary.
Bw1—4 to 11 inches; yellowish brown (10YR 5/8) loam; weak fine subangular blocky structure; friable; few fine roots; 8 percent gravel; few fine flakes of mica; strongly acid; gradual wavy boundary.
Bw2—11 to 18 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; few fine roots; 8 percent gravel; few fine flakes of mica; very strongly acid; gradual wavy boundary.
BC—18 to 25 inches; yellowish brown (10YR 5/8) sandy loam; weak medium subangular blocky structure; friable; few fine roots; 13 percent gravel; few fine flakes of mica; very strongly acid; gradual wavy boundary.
C1—25 to 40 inches; yellowish brown (10YR 5/6 and 5/8), yellow (10YR 7/6), and brownish yellow (10YR 6/6) gravelly loamy sand; massive; friable; few fine roots; 23 percent gravel; few fine flakes of mica; very strongly acid; gradual wavy boundary.
C2—40 to 60 inches; yellow (10YR 7/6), very pale brown (10YR 8/3), and yellowish brown (10YR 5/8) gravelly loamy sand; massive; very friable; 25 percent gravel; few fine flakes of mica; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches to weathered bedrock
Content of rock fragments: 0 to 35 percent throughout the profile
Reaction: Very strongly acid to moderately acid
Other characteristics: Few or common flakes of mica throughout the profile; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—7.5YR to 2.5Y
Value—2 to 5
Chroma—1 to 4
Texture of fine-earth fraction—fine sandy loam, sandy loam, or loam

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture of fine-earth fraction—fine sandy loam, sandy loam, or loam

BC horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture of fine-earth fraction—fine sandy loam, sandy loam, or loam

C horizon:
Color—similar to the Bw horizon or multicolored
Texture—saprolite that rubs to fine-earth of fine sandy loam, sandy loam, loam, loamy fine sand, or loamy sand

Greenlee Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Steep and very steep (20 to 50 percent)
Landscape position: Mountain coves, benches, and footslopes
Parent material: Colluvium weathered from crystalline rocks

Typical Pedon

Greenlee very cobbly loam, 20 to 35 percent slopes; from U.S. Highway 19E, about 7.3 miles on State Highway 143, about 400 feet southwest of the road along Poplar Branch:

A—0 to 5 inches; dark brown (7.5YR 3/2) very cobbly loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; 40 percent cobbles and gravel; strongly acid; gradual wavy boundary.

Bw1—5 to 14 inches; brown (7.5YR 4/4) very cobbly loam; common fine faint dark brown (7.5YR 3/2) mottles; moderate fine subangular blocky structure; very friable; many fine and medium roots; many fine pores; 40 percent cobbles and gravel; strongly acid; clear wavy boundary.

Bw2—14 to 26 inches; strong brown (7.5YR 5/8) very cobbly loam; weak fine subangular blocky structure; very friable; common fine and medium roots; common fine pores; 55 percent cobbles and gravel; very strongly acid; diffuse wavy boundary.

Bw3—26 to 36 inches; strong brown (7.5YR 5/8) very cobbly loam; few fine faint yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; very friable; few fine and medium roots; many fine pores; 60 percent cobbles and gravel; very strongly acid; gradual wavy boundary.

BC—36 to 45 inches; yellowish brown (10YR 5/6) very cobbly sandy loam; few fine faint strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; very friable; few fine and medium roots; few fine pores; 60 percent cobbles, stones, and gravel; very strongly acid; gradual wavy boundary.

C—45 to 60 inches; yellowish brown (10YR 5/6) extremely cobbly sandy loam; single grained; loose; few fine and medium roots; 70 percent cobbles, stones, and gravel; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Content and size of rock fragments: 35 to 60 percent in the A and Bw horizons and as much as 80 percent in the C horizon; ranging from gravel to boulders; size and content typically increase as depth increases

Reaction: Extremely acid to moderately acid, except in limed areas

Other characteristics: None to common flakes of mica throughout the profile; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:

Hue—10YR or 7.5YR

Value—2 to 5

Chroma—1 to 4

Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

Bw horizon:

Hue—10YR or 7.5YR

Value—4 to 6

Chroma—3 to 8

Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

BC horizon (if it occurs):

Hue—10YR or 7.5YR

Value—4 to 6

Chroma—3 to 6

Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

C horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture of fine-earth fraction—loam, fine sandy loam, sandy loam, loamy sand, or sand

Groseclose Series

Depth class: Very deep

Drainage class: Well drained

Slope range: Sloping to steep (5 to 35 percent)

Landscape position: Upland ridge crests, shoulders, and side slopes

Parent material: Materials weathered from limestone, shale, siltstone, and sandstone

Typical Pedon

Groseclose silty clay loam, 12 to 20 percent slopes; from State Highway 67 in the Little Milligan community, 0.6 mile north on Moody Road, 62 degrees east, on the ridgetop:

Ap—0 to 4 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium granular structure; friable; many fine and common medium roots; moderately acid; clear smooth boundary.

Bt1—4 to 18 inches; yellowish red (5YR 5/6) clay; moderate and strong medium subangular blocky structure; firm; few fine roots; common fine and medium pores; common distinct clay films on faces of peds and lining pores; moderately acid; gradual smooth boundary.

Bt2—18 to 28 inches; yellowish red (5YR 5/6) clay; common medium distinct brownish yellow (10YR 6/8) mottles; moderate and strong medium subangular blocky structure; firm; few very fine roots; common fine and medium pores; common distinct clay films on faces of peds and lining pores; strongly acid; gradual smooth boundary.

Bt3—28 to 40 inches; yellowish red (5YR 5/6) silty clay loam; common medium distinct brownish yellow (10YR 6/8) and strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; common fine and medium pores; few distinct clay films on faces of peds; 15 percent chert gravel; strongly acid; gradual wavy boundary.

BC—40 to 60 inches; yellowish red (5YR 5/8) silty clay loam; common medium faint yellowish red (5YR 4/6) and few fine distinct strong brown (7.5YR 5/8) and reddish yellow (7.5YR 6/8) mottles; massive; friable; few fine and medium pores; few faint clay films lining pores; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to about 20 percent throughout the profile
Reaction: Extremely acid to strongly acid, except in limed areas
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A or Ap horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture of fine-earth fraction—silty clay loam, silt loam, or loam

Bt horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture of fine-earth fraction—clay, silty clay, or silty clay loam

BC horizon (if it occurs):
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture of fine-earth fraction—silt clay loam, silty clay, or clay

Jeffrey Series

Depth class: Moderately deep
Drainage class: Well drained
Slope range: Steep and very steep (20 to 50 percent)
Landscape position: Mountain crests
Parent material: Residuum weathered from metasedimentary rocks

Typical Pedon

Jeffrey loam, 20 to 35 percent slopes; just south of the Holston Mountain Trail, 500 feet east of the Holston High Knob bench mark:

Oi—0 to 1 inch; partially decomposed forest litter.

A1—1 to 8 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; many fine and medium roots; 5 percent gravel; strongly acid; clear smooth boundary.

A2—8 to 10 inches; dark brown (10YR 3/3) loam; weak fine subangular blocky structure; very friable; common fine and medium roots; 10 percent gravel; very strongly acid; abrupt smooth boundary.

Bw—10 to 21 inches; brown (10YR 4/3) loam; weak medium subangular blocky structure; friable; few fine and medium roots; few fine and medium pores; 15 percent gravel; very strongly acid; gradual smooth boundary.

BC—21 to 28 inches; yellowish brown (10YR 5/6) gravelly fine sandy loam; weak medium subangular blocky structure; friable; few fine and coarse roots; 30 percent gravel and cobbles; very strongly acid; abrupt wavy boundary.

R—28 inches; tilted, fractured, hard metasandstone rock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches to hard bedrock
Content of rock fragments: About 5 to 30 percent in the A and B horizons and 15 to 50 percent in the C horizon
Reaction: Very strongly acid or strongly acid
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Texture of fine-earth fraction—loam or fine sandy loam

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

BC horizon (if it occurs):
Hue—10YR
Value—4 or 5

Chroma—3 to 6
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

Keener Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Sloping to very steep (5 to 50 percent)
Landscape position: Mountain coves, footslopes, benches, and colluvial fans
Parent material: Loamy colluvium weathered from metasedimentary rocks

Typical Pedon

Keener loam, 20 to 35 percent slopes; from the Pierce community, take Red Hill Road west to end, go right on Pilroetown Road to the end, 800 feet west from the end of Pilroetown Road:

A—0 to 2 inches; very dark grayish brown (10YR 3/2) loam; weak medium granular structure; very friable; many fine and medium roots; 12 percent gravel and cobbles; strongly acid; abrupt irregular boundary.
BA—2 to 7 inches; yellowish brown (10YR 5/4) loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.
Bt1—7 to 23 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; common fine and medium and few coarse roots; common fine and medium pores; common faint clay films on faces of peds; strongly acid; clear smooth boundary.
Bt2—23 to 45 inches; strong brown (7.5YR 5/6) loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine and medium pores; common faint clay films on faces of peds; strongly acid; clear smooth boundary.
BC—45 to 63 inches; strong brown (7.5YR 5/6) very cobbly loam; weak fine subangular blocky structure; friable; few faint clay films lining faces of some peds; 40 percent cobbles and gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 35 percent in the A horizon, 0 to 30 percent in the Bt horizon, and 10 to 50 percent in the BC and C horizons
Reaction: Extremely acid to moderately acid
Other characteristics: A lithologic discontinuity occurs below the control section in some pedons, and it has hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 5 to 8 and is loam, clay loam, or clay in the fine-earth fraction; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of fine-earth fraction—loam or fine sandy loam

BA horizon (if it occurs):
Hue—10YR or 7.5YR
Value—3 to 5
Chroma—4 to 6
Texture of fine-earth fraction—fine sandy loam or loam

Bt horizon:
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—6 or 8
Texture of fine-earth fraction—loam, clay loam, or sandy clay loam

BC horizon (if it occurs):
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—6 or 8
Texture of fine-earth fraction—loam, clay loam, or sandy clay loam

Lonon Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Sloping to steep (5 to 35 percent)
Landscape position: Coves, benches, fans, and toeslopes
Parent material: Colluvium weathered from metasedimentary rocks

Typical Pedon

Lonon loam, 5 to 12 percent slopes; from State Highway 91, south on Blue Springs Road to Nave Hollow Loop, 0.3 mile around the loop, 500 feet south:

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) loam; moderate medium granular structure; friable; many fine and medium roots; 5 percent gravel; moderately acid; abrupt smooth boundary.
Bt1—8 to 20 inches; yellowish red (5YR 5/8) clay loam;

weak medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; 10 percent gravel; strongly acid; clear smooth boundary.

Bt2—20 to 33 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct clay films on faces of peds and lining pores; 10 percent gravel; very strongly acid; gradual smooth boundary.

Bt3—33 to 49 inches; red (2.5YR 4/6) gravelly clay loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds and lining pores; 20 percent gravel; very strongly acid; gradual smooth boundary.

BC—49 to 61 inches; yellowish red (5YR 5/6) gravelly sandy clay loam; weak fine subangular blocky structure; friable; few faint clay films on faces of some peds; 25 percent gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content and size of rock fragments: 0 to 35 percent in the upper 40 inches and 0 to 60 percent below a depth of 40 inches; content and size commonly increase as depth increases
Reaction: Extremely acid to moderately acid, except in limed areas
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

Ap or A horizon:
Hue—5YR to 10YR
Value—2 to 5
Chroma—2 to 4
Texture of fine-earth fraction—loam or fine sandy loam

Bt horizon:
Hue—2.5YR or 5YR
Value—4 to 6
Chroma—4 to 8
Texture of fine-earth fraction—loam, clay loam, or sandy clay loam

BC horizon (if it occurs):
Hue—2.5YR or 5YR
Value—4 to 6
Chroma—4 to 8
Texture of fine-earth fraction—loam, clay loam, or sandy clay loam

Maymead Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Steep and very steep (20 to 50 percent)
Landscape position: Mountain coves, benches, and footslopes
Parent material: Mixed colluvium

Typical Pedon

Maymead loam, 35 to 50 percent slopes; from Holston Mountain Trail at Little Stony Gap, 2,300 feet south, 75 degrees east:

A—0 to 1 inch; dark brown (10YR 3/3) loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; 10 percent gravel; strongly acid; clear smooth boundary.

BA—1 to 4 inches; dark yellowish brown (10YR 4/4) loam; weak medium granular structure; very friable; many fine and medium and few coarse roots; 10 percent gravel; strongly acid; clear smooth boundary.

Bw1—4 to 12 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure parting to weak medium granular; friable; common fine and medium and few coarse roots; 10 percent gravel; strongly acid; clear smooth boundary.

Bw2—12 to 24 inches; yellowish brown (10YR 5/6) cobbly loam; weak medium subangular blocky structure; friable; few fine and medium roots; 25 percent cobbles and gravel; strongly acid; clear smooth boundary.

Bw3—24 to 38 inches; yellowish brown (10YR 5/6) cobbly loam; weak fine subangular blocky structure; very friable; few fine and medium roots; 35 percent cobbles and gravel; strongly acid; clear smooth boundary.

C—38 to 63 inches; yellowish brown (10YR 5/6) very cobbly loam; massive; very friable; few fine roots; 60 percent cobbles and gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches to hard bedrock
Content of rock fragments: 10 to 35 percent in the A horizon and averaging 15 to 35 percent in the control section; 10 to 50 percent in individual subhorizons; typically content and size increase as depth increases
Reaction: Very strongly acid or strongly acid
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 or 3
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

BA horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—4 to 6
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

Bw horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 or 6
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

C horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 8
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam
Other features—horizon commonly contains more and larger rock fragments than the Bw horizon

Montevallo Series

Depth class: Shallow
Drainage class: Well drained
Slope range: Moderately steep to extremely steep (12 to 80 percent)
Landscape position: Upland ridge crests, shoulders, and side slopes
Parent material: Residuum weathered from shale or siltstone

Typical Pedon

Montevallo channery silt loam, 35 to 50 percent slopes; north on Lick Creek Road from the Watauga community, turn right on Reese Road, 0.5 mile on Reese Road, 100 feet south of the road:

Oe—0 to 2 inches; slightly decomposed forest litter of hardwood leaves, twigs, and pine needles.
A—2 to 6 inches; brown (10YR 4/3) channery silt loam; few fine faint very dark grayish brown (10YR 3/2) mottles; weak fine granular structure; very friable; many fine and medium roots; 20 percent channers; strongly acid; clear smooth boundary.
AB—6 to 9 inches; dark yellowish brown (10YR 4/4) very channery silt loam; few fine faint yellowish brown (10YR 5/6) mottles; weak fine granular structure; very friable; many fine and medium roots; 45 percent channers; very strongly acid; clear wavy boundary.
Bw—9 to 15 inches; yellowish brown (10YR 5/6) very channery silty clay loam; few fine distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; very friable; few fine and medium roots; many fine pores; 50 percent channers; very strongly acid; clear wavy boundary.
Cr—15 inches; fractured, tilted, weathered shale; yellowish brown (10YR 5/6) silt loam filling fractures.

Range in Characteristics

Depth to bedrock: 10 to 20 inches to weathered bedrock
Content and size of rock fragments: 15 to 60 percent in the A horizon and 35 to 85 percent in the Bw horizon; shale channers
Reaction: Very strongly acid to moderately acid
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—7.5YR or 10YR
Value—2 to 6
Chroma—1 to 4
Texture of fine-earth fraction—silt loam or loam

AB horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—2 to 6
Chroma—1 to 4
Texture of fine-earth fraction—silt loam or loam

Bw horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—silty clay loam, silt loam, loam, or clay loam

Cr layer:
Texture—soft, weathered shale or siltstone that can be removed with hand tools

Northcove Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Very steep and extremely steep (35 to 80 percent)

Landscape position: Mountain coves, footslopes, and benches
Parent material: Colluvium weathered from metasedimentary rocks

Typical Pedon

Northcove very stony loam, 50 to 80 percent slopes; east on State Highway 67 from the entrance to Watauga Point Recreation Area, about 1 mile to the entrance of the Forest Service road on the right, 1.2 miles on the Forest Service road, 50 feet west of the road:

A—0 to 1 inch; dark brown (10YR 3/3) very stony loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; 40 percent stones, cobbles, and gravel; moderately acid; clear smooth boundary.
BA—1 to 4 inches; dark yellowish brown (10YR 4/4) stony sandy loam; weak medium granular structure; very friable; many fine and medium and few coarse roots; 35 percent stones, cobbles, and gravel; moderately acid; clear smooth boundary.
Bw1—4 to 12 inches; yellowish brown (10YR 5/6) very stony sandy loam; weak medium subangular blocky structure parting to weak medium granular; friable; common fine and medium and few coarse roots; 40 percent stones, cobbles, and gravel; moderately acid; clear smooth boundary.
Bw2—12 to 24 inches; yellowish brown (10YR 5/6) very stony sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; 55 percent stones, cobbles, and gravel; strongly acid; clear smooth boundary.
BC—24 to 38 inches; yellowish brown (10YR 5/6) very cobbly sandy loam; weak fine subangular blocky structure; very friable; few fine and medium roots; 60 percent cobbles and gravel; strongly acid; clear smooth boundary.
C—38 to 63 inches; yellowish brown (10YR 5/6) extremely cobbly sandy loam; massive; very friable; few fine roots; 80 percent cobbles and gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content and size of rock fragments: 35 to 60 percent in the A and Bw horizons and 35 to 80 percent in the C horizon; ranging from gravel or channers to boulders
Reaction: Extremely acid to moderately acid
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—7.5YR or 10YR
Value—2 to 5
Chroma—2 to 4
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

BA horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 to 5
Chroma—2 to 4
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

BC horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—sandy loam, fine sandy loam, or loamy sand

Pettyjon Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Nearly level (0 to 2 percent)
Landscape position: Flood plains
Parent material: Alluvium weathered from shale and limestone

Typical Pedon

Pettyjon loam, rarely flooded; south on U.S. Highway 19W from the Okalona community to Anderson Road, left onto a road, 400 feet along the road, about 200 feet south of the road, about 50 feet west of Buffalo Creek:

Ap—0 to 6 inches; brown (10YR 4/3) loam; common fine faint dark yellowish brown (10YR 3/4) mottles; weak fine granular structure; very friable; many fine and medium roots; common fine pores; neutral; clear wavy boundary.
Bw1—6 to 15 inches; brown (10YR 4/3) loam; weak

fine subangular blocky structure; very friable; many fine and medium roots; common fine and medium pores; neutral; gradual wavy boundary.

Bw2—15 to 30 inches; brown (10YR 4/3) loam; common fine faint yellowish brown (10YR 5/6) mottles; very fine subangular blocky structure; very friable; few fine and medium roots; few fine and medium pores; slightly acid; clear wavy boundary.

BC—30 to 40 inches; dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; very friable; 3 percent gravel; slightly acid; gradual smooth boundary.

C—40 to 60 inches; dark yellowish brown (10YR 4/4) sandy loam; few fine faint brown (10YR 4/3) mottles; massive; very friable; 5 percent gravel; slightly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 5 percent throughout the profile
Reaction: Slightly acid to slightly alkaline
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

Ap horizon:
Hue—7.5YR or 10YR
Value—4
Chroma—3 or 4
Texture of fine-earth fraction—loam or silt loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture of fine-earth fraction—loam or silt loam

BC horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture of fine-earth fraction—loam or fine sandy loam

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture of fine-earth fraction—sandy loam, loam, silt loam, or fine sandy loam
Other features—in some pedons the horizon is mottled in shades of brown, yellow, or gray and has no dominant color

Plott Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Moderately steep and steep (15 to 30 percent)
Landscape position: Mountain ridge crests
Parent material: Residuum weathered from crystalline rocks, affected by soil creep in some areas

Typical Pedon

Plott loam, 30 to 50 percent slopes, stony; in Mitchell County, North Carolina; from Bakersville, North Carolina, 9.9 miles north on North Carolina Highway 261 to its intersection with Secondary Road 1346, southwest 0.1 mile to a private lane, right onto a lane, 0.7 mile on the lane, in a road cut. (This pedon is in Mitchell County, North Carolina, where Plott soils occur extensively. It is in a slope unit not recognized in Carter County. Plott soils are not extensive in Carter County but are limited to areas adjoining North Carolina. Data from the soil survey of Mitchell County were used to represent the Plott soils in Carter County.)

A—0 to 13 inches; very dark grayish brown (10YR 3/2) loam; moderate medium granular structure; friable; common very fine and fine roots; common very fine and fine pores; few fine flakes of mica; strongly acid; clear wavy boundary.

AB—13 to 16 inches; very dark grayish brown (10YR 3/2) loam; common medium distinct strong brown (7.5YR 4/6) mottles; weak fine subangular blocky structure; very friable; common very fine and fine roots; common very fine and fine pores; few fine flakes of mica; strongly acid; clear wavy boundary.

Bw—16 to 37 inches; strong brown (7.5YR 4/6) loam; weak medium subangular blocky structure; friable; common very fine, fine, medium, and coarse roots; common very fine and fine pores; few fine flakes of mica; 5 percent gravel; strongly acid; gradual smooth boundary.

BC—37 to 43 inches; dark brown (7.5YR 4/4) sandy loam; weak fine subangular blocky structure; very friable; few very fine and fine roots; few very fine and fine pores; few fine flakes of mica; 5 percent gravel; common medium distinct streaks of multicolored saprolite; strongly acid; clear wavy boundary.

C—43 to 60 inches; multicolored saprolite that crushes to loamy sand; massive; very friable; few very fine roots; few very fine pores; common fine flakes of mica; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content and size of rock fragments: 0 to 35 percent in the A horizon and the upper part of the Bw horizon and 0 to 60 percent below a depth of 40 inches; ranging from gravel to stones
Reaction: Extremely acid to moderately acid
Other characteristics: Few or common flakes of mica throughout the profile in most pedons; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—5YR to 10YR
Value—2 or 3
Chroma—1 to 3
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

AB horizon (if it occurs):
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 to 4
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—4 to 8
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

BC horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

C horizon:
Color—variable
Texture of fine-earth fraction—saprolite that is fine sandy loam, sandy loam, loamy fine sand, loamy sand, or sand when crushed

Porters Series

Depth class: Deep
Drainage class: Well drained
Slope range: Moderately steep to extremely steep (15 to 80 percent)
Landscape position: Mountain crests, shoulders, and side slopes
Parent material: Residuum from crystalline rocks, commonly affected by soil creep in the upper part

Typical Pedon

Porters gravelly loam, 30 to 50 percent slopes, stony; in Avery County, North Carolina; 3.0 miles north from Plumtree on U.S. Highway 19E, 3.4 miles northwest on State Route 1132, about 20 feet east, in a road cut. (This pedon is in Avery County, North Carolina, where Porters soils occur extensively. Porters soils are not extensive in Carter County but are limited to areas near the North Carolina State line. Data from the soil survey of Avery County were used to represent the Porters soils in Carter County.)

Oe—0 to 1 inch; partially decomposed forest litter.
A1—1 to 3 inches; dark brown (10YR 3/3) gravelly loam; weak fine granular structure; very friable; many fine and medium roots; few fine flakes of mica; 18 percent gravel; very strongly acid; clear wavy boundary.
A2—3 to 10 inches; dark yellowish brown (10YR 3/4) gravelly loam; weak fine granular structure; very friable; many fine and medium roots; few fine flakes of mica; 18 percent gravel; very strongly acid; clear wavy boundary.
Bw—10 to 30 inches; dark yellowish brown (10YR 4/6) loam; weak fine subangular blocky structure; friable; common fine and medium roots; few fine flakes of mica; 10 percent gravel; strongly acid; gradual wavy boundary.
C1—30 to 40 inches; dark yellowish brown (10YR 4/6) fine sandy loam; massive; friable; few fine and medium roots; common fine flakes of mica; 12 percent gravel; strongly acid; gradual wavy boundary.
C2—40 to 54 inches; mottled black (10YR 2/1), light gray (10YR 6/1), and white (10YR 8/1) gravelly loamy sand; massive; friable; few fine roots; common fine flakes of mica; 20 percent gravel; slightly acid; abrupt wavy boundary.
R—54 inches; hard amphibolite bedrock.

Range in Characteristics

Depth to bedrock: 40 to 60 inches to hard bedrock
Content and size of rock fragments: Commonly 0 to 15 percent; content may be as much as 35 percent in some pedons; gravel, cobbles, or stones
Reaction: Very strongly acid to slightly acid
Other characteristics: Few or common flakes of mica throughout the profile

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3

Chroma—1 to 4
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

C horizon:
Color—typically multicolored; the upper part may be similar in color to the overlying horizon
Texture—typically saprolite weathered from the bedrock; when crushed, texture of fine-earth fraction is fine sandy loam, sandy loam, loam, loamy sand, or loamy fine sand

R layer:
Texture—hard crystalline bedrock

Potomac Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Slope range: Nearly level (0 to 3 percent)
Landscape position: Flood plains
Parent material: Coarse textured alluvium

Typical Pedon

Potomac gravelly loam, rarely flooded; south on Gap Creek Road from Elizabethton to the intersection of Coal Chute Road, 700 feet south, 58 degrees west from the intersection, near the east bank of Gap Creek:

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) gravelly loam; few fine faint dark yellowish brown (10YR 3/4) mottles; weak fine granular structure; very friable; many fine and medium roots; 25 percent gravel; moderately acid; clear wavy boundary.

C1—6 to 20 inches; dark yellowish brown (10YR 4/4) very cobbly loamy sand; many fine faint yellowish brown (10YR 5/6) mottles; single grained; loose; common fine and medium roots; 60 percent cobbles and gravel; strongly acid; gradual smooth boundary.

C2—20 to 40 inches; dark yellowish brown (10YR 4/4) extremely cobbly sand; many fine faint yellowish brown (10YR 5/6) mottles; single grained; loose; few fine and medium roots; 70 percent cobbles, stones, and gravel; strongly acid; gradual wavy boundary.

C3—40 to 60 inches; dark yellowish brown (10YR 4/4) extremely cobbly sand; common fine faint yellowish brown (10YR 5/6) mottles; single grained; loose; 70 percent cobbles and gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 50 percent in the A horizon and typically more than 50 percent in the C horizon; individual subhorizons of the C horizon are nearly free of rocks in some pedons
Reaction: Very strongly acid to slightly alkaline

Ap or A horizon:
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—2 to 4
Texture of fine-earth fraction—loam, fine sandy loam, sandy loam, or loamy sand

C horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 or 4
Texture of fine-earth fraction—sand or loamy sand; subhorizons that are sandy loam in the fine-earth fraction occur in some pedons

Shady Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Nearly level and gently sloping (1 to 4 percent)
Landscape position: Low stream terraces
Parent material: Alluvium weathered from limestone, shale, and sandstone

Typical Pedon

Shady loam, 1 to 4 percent slopes, rarely flooded; south on Okalona Road from Milligan College to Dry Creek Road, 1.2 miles left on the road, 200 feet west of the road:

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; very friable; common fine roots; few fine pores; 2 percent gravel; very strongly acid; abrupt smooth boundary.

Bt1—9 to 18 inches; strong brown (7.5YR 4/6) clay loam; weak medium subangular blocky structure; friable; few very fine roots; common fine pores; strongly acid; gradual smooth boundary.

Bt2—18 to 28 inches; strong brown (7.5YR 4/6) clay loam; weak medium subangular blocky structure; friable; common fine pores; few faint clay films on faces of peds; few very fine black stains; strongly acid; clear wavy boundary.

BC—28 to 39 inches; strong brown (7.5YR 4/6) gravelly clay loam; weak fine subangular blocky structure; friable; 20 percent gravel and cobbles; very strongly acid; gradual wavy boundary.

C—39 to 61 inches; strong brown (7.5YR 4/6) gravelly sandy loam; massive; very friable; 30 percent gravel and cobbles; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 15 percent in the A and Bt horizons and 5 to 40 percent in the BC and C horizons
Reaction: Very strongly acid to moderately acid
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

Ap or A horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture of fine-earth fraction—loam or fine sandy loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8
Texture of fine-earth fraction—clay loam, sandy clay loam, or loam

BC horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 8
Chroma—4 to 8
Texture of fine-earth fraction—clay loam, sandy clay loam, or loam

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 or 6
Mottles—occurring in some pedons; in shades of brown, yellow, or gray
Texture of fine-earth fraction—horizon is sandy loam, fine sandy loam, or loam or has thin stratified layers of these textures

Shelocta Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Steep (20 to 35 percent)
Landscape position: Mountain coves, benches, and footslopes
Parent material: Colluvium derived from acid siltstone, shale, or sandstone

Typical Pedon

Shelocta silt loam, 35 to 50 percent slopes; in Sullivan County, Tennessee; 2,000 feet east of the intersection of Highway 421 and U.S. Forest Service Road 4331. (This pedon is in Sullivan County, where Shelocta soils occur extensively. It is in a slope unit not recognized in Carter County. The extent of this soil type in Carter County is limited to a small area adjoining Sullivan County. Data from the soil survey of Sullivan County were used to represent the Shelocta soils in Carter County.)

Oi—0 to 2 inches; partially decomposed mat of hardwood leaves and twigs.

A—2 to 4 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine and medium roots; 5 percent channers; strongly acid; clear smooth boundary.

E—4 to 6 inches; yellowish brown (10YR 5/4) silt loam; weak medium granular structure; very friable; many fine and medium roots; 5 percent channers; strongly acid; gradual smooth boundary.

BE—6 to 12 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky and weak medium granular structure; friable; common fine and medium and few coarse roots; many fine and medium tubular pores; 10 percent channers; strongly acid; gradual smooth boundary.

Bt1—12 to 24 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure parting to weak medium granular; friable; common medium and coarse roots; many fine and medium tubular pores; few faint clay films; 10 percent channers; strongly acid; gradual smooth boundary.

Bt2—24 to 40 inches; strong brown (7.5YR 5/8) channery silty clay loam; moderate medium subangular blocky structure; friable; common medium and coarse roots; many fine and medium tubular pores; few faint clay films; 15 percent channers; strongly acid; gradual smooth boundary.

Bt3—40 to 47 inches; strong brown (7.5YR 5/8) channery silty clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; common fine and medium tubular pores; few faint clay films; 15 percent channers; strongly acid; gradual smooth boundary.

BC—47 to 65 inches; strong brown (7.5YR 5/8) channery silty clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; 20 percent channers; strongly acid.

Range in Characteristics

Depth to bedrock: More than 48 inches
Content of rock fragments: 5 to 35 percent in the A and Bt horizons and 5 to 70 percent in the C horizon
Reaction: Very strongly acid or strongly acid
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture of fine-earth fraction—silt loam or loam

E horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture of fine-earth fraction—silt loam or loam

BE horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture of fine-earth fraction—loam, silt loam, or silty clay loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture of fine-earth fraction—silt loam or silty clay loam

BC horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture of fine-earth fraction—silt loam or silty clay loam

Spivey Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Very steep and extremely steep (35 to 80 percent)
Landscape position: Mountain coves
Parent material: Colluvium weathered mainly from metasedimentary rocks

Typical Pedon

Spivey very cobbly loam, 50 to 80 percent slopes; south on State Highway 143 from the Roan Mountain community, left on Roan Ladder Road to the end of the pavement, 500 feet southeast:

A1—0 to 12 inches; very dark brown (10YR 2/2) very cobbly loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; 40 percent cobbles and gravel; strongly acid; gradual wavy boundary.
A2—12 to 17 inches; dark brown (10YR 3/3) very cobbly loam; many fine faint very dark brown (10YR 2/2) mottles; weak medium granular structure; very friable; many fine and medium roots; 40 percent cobbles and gravel; strongly acid; gradual wavy boundary.
Bw1—17 to 38 inches; brown (7.5YR 4/4) very cobbly loam; common fine faint dark yellowish brown (10YR 4/6) mottles; weak medium subangular blocky structure parting to weak medium granular; very friable; common fine and medium roots; 45 percent cobbles and gravel; very strongly acid; gradual wavy boundary.
Bw2—38 to 60 inches; strong brown (7.5YR 5/6) very cobbly sandy loam; few fine faint dark yellowish brown (10YR 4/6) mottles; weak medium subangular blocky structure; very friable; few fine and medium roots; 55 percent cobbles, gravel, and stones; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 40 to 60 percent throughout the profile
Reaction: Extremely acid to strongly acid

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture of fine-earth fraction—loam, sandy loam, or silt loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture of fine-earth fraction—loam, sandy loam, or silt loam

Steadman Series

Depth class: Very deep
Drainage class: Moderately well drained

Slope range: Nearly level (0 to 3 percent)
Landscape position: Flood plains and low stream terraces
Parent material: Mixed alluvium derived mainly from shale and limestone

Typical Pedon

Steadman silt loam, occasionally flooded; north on Lick Creek Road from the Watauga community to the Bear Branch Road intersection, 125 feet south from the intersection:

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) silt loam; few fine faint yellowish brown (10YR 5/6) mottles; moderate medium granular structure; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

BA—7 to 13 inches; dark yellowish brown (10YR 4/6) silt loam; weak medium granular structure; very friable; many fine and medium roots; 5 percent gravel and channers; moderately acid; abrupt smooth boundary.

Bw1—13 to 26 inches; yellowish brown (10YR 5/6) silty clay loam; weak fine subangular blocky structure; very friable; common fine and medium roots; 5 percent gravel and channers; few fine faint grayish brown (10YR 5/2) iron depletions; moderately acid; clear smooth boundary.

Bw2—26 to 41 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; very friable; few fine roots; common medium and coarse faint grayish brown (10YR 5/2) iron depletions; moderately acid; clear smooth boundary.

C—41 to 60 inches; light yellowish brown (10YR 6/4) silt loam; weak coarse subangular blocky structure; very friable; 10 percent gravel and channers; many coarse faint light brownish gray (10YR 6/2) iron depletions; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content and size of rock fragments: 0 to 5 percent in the A and Bw horizons and as much as 15 percent in the C horizon; mainly small rounded gravel
Reaction: Moderately acid to slightly alkaline
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

Ap or A horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture of fine-earth fraction—silt loam or loam

BA horizon:
Hue—10YR
Value—4 or 5
Chroma—5 or 6
Texture of fine-earth fraction—silt loam or loam

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—4 or 6
Texture of fine-earth fraction—silty clay loam or silt loam
Mottles or redoximorphic features—none to common in shades of gray, brown, yellow, or red
Other features—subhorizons with a dominant chroma of 2 or less occur below a depth of 40 inches in some pedons

C horizon:
Hue—10YR
Value—4 to 6
Chroma—typically 3 to 6; gleyed hues or chromas of 2 or less occur below a depth of 40 inches in some pedons
Texture of fine-earth fraction—silt loam, loam, or silty clay loam
Mottles or redoximorphic features—few to many in shades of gray, brown, yellow, or red
Other features—in some pedons the horizon is profusely mottled in shades of gray, brown, yellow, or red and has no dominant matrix color

Talbott Series

Depth class: Moderately deep
Drainage class: Well drained
Slope range: Moderately steep and steep (12 to 35 percent)
Landscape position: Upland ridges and side slopes
Parent material: Residuum from limestone

Typical Pedon

Talbott silt loam in an area of Braxton-Talbott-Rock outcrop complex, 12 to 20 percent slopes, eroded; south on Okalona Road from the College Park community, left on Anderson Road, 0.9 mile to a gravel road, right on the gravel road to its end, 800 feet northeast:

A—0 to 3 inches; dark brown (10YR 3/3) silt loam; common fine faint dark grayish brown (10YR 4/2) mottles; weak fine granular structure; very friable;

many fine and medium roots; slightly acid; abrupt smooth boundary.

Bt1—3 to 8 inches; strong brown (7.5YR 5/8) clay; common medium distinct dark yellowish brown (10YR 4/4) mottles; moderate medium subangular blocky structure; friable; many fine and medium roots; common fine and medium pores; common distinct clay films on faces of peds and lining pores; strongly acid; gradual smooth boundary.

Bt2—8 to 17 inches; strong brown (7.5YR 5/6) clay; common medium distinct yellowish brown (10YR 5/8) mottles; strong medium subangular blocky structure; firm; common fine and medium roots; few fine pores; common distinct clay films on faces of peds and lining pores; strongly acid; gradual smooth boundary.

Bt3—17 to 28 inches; strong brown (7.5YR 5/8) clay; strong medium subangular blocky structure; firm; common fine and medium roots; few fine pores; common distinct clay films on faces of peds and lining pores; moderately acid; abrupt wavy boundary.

R—28 inches; hard limestone rock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches to hard bedrock
Content of rock fragments: Typically less than 5 percent but ranging to as much as 10 percent throughout the profile
Reaction: Generally strongly acid to slightly acid; horizons near bedrock range to slightly alkaline

A or Ap horizon:
Hue—10YR or 7.5YR
Value—3 to 5
Chroma—2 to 4
Texture of fine-earth fraction—silt loam or silty clay loam
Other features—hue of 5YR and chroma of 6 occur in areas where erosion is more severe

Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—4 to 8
Texture of fine-earth fraction—silty clay or clay

Tate Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Gently sloping to extremely steep (2 to 60 percent)
Landscape position: Coves, footslopes, and benches
Parent material: Colluvium weathered from crystalline rocks

Typical Pedon

Tate stony loam, 35 to 60 percent slopes; on Gap Creek Road from Elizabethton to Upper Gap Creek School, 2,400 feet south from the school, between Big Gum Hollow and Little Gum Hollow:

A—0 to 3 inches; very dark grayish brown (10YR 3/2) stony loam; weak fine granular structure; friable; common fine and medium roots; 20 percent stones and gravel; strongly acid; abrupt smooth boundary.

AB—3 to 6 inches; dark yellowish brown (10YR 4/4) stony loam; weak fine subangular blocky structure; friable; common fine and medium roots; 20 percent stones and gravel; very strongly acid; clear smooth boundary.

Bt—6 to 45 inches; yellowish brown (10YR 5/6) cobbly clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; 25 percent cobbles and gravel; very strongly acid; gradual smooth boundary.

BC—45 to 51 inches; yellowish brown (10YR 5/6) cobbly loam; weak medium subangular blocky structure; friable; few fine roots; 30 percent cobbles and gravel; very strongly acid; gradual smooth boundary.

C—51 to 60 inches; yellowish brown (10YR 5/6) cobbly loam; massive; friable; 30 percent cobbles and gravel; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 35 percent in the A and Bt horizons and 5 to 60 percent in the BC and C horizons
Reaction: Very strongly acid to moderately acid, except in limed areas
Other characteristics: None to common flakes of mica throughout the profile; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—10YR
Value—3 to 6
Chroma—2 to 4
Texture of fine-earth fraction—loam or fine sandy loam

AB horizon (if it occurs):
Hue—10YR
Value—3 to 6
Chroma—4 or 6

Texture of fine-earth fraction—loam or fine sandy loam

Bt horizon:

Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture of fine-earth fraction—clay loam, sandy clay loam, or loam

BC horizon (if it occurs):

Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—4 to 8
Texture of fine-earth fraction—clay loam, sandy clay loam, or loam

C horizon (if it occurs):

Color—variable
Texture—largely unweathered colluvium; fine-earth fraction is loamy to sandy; sandy textures are restricted to depths below 40 inches

Tusquitee Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Steep and very steep (20 to 50 percent)
Landscape position: Mountain coves, benches, and footslopes
Parent material: Colluvium weathered from crystalline rocks

Typical Pedon

Tusquitee loam, 20 to 35 percent slopes; from the Roan Mountain community, east on U.S. Highway 19E to its intersection with Walnut Mountain Road, 1,000 feet southeast, in the vicinity of the power line:

A—0 to 9 inches; dark brown (10YR 3/3) loam; moderate medium granular structure; very friable; many fine and medium roots; moderately acid; clear smooth boundary.

BA—9 to 13 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; very friable; many fine and medium roots; 5 percent gravel; strongly acid; clear smooth boundary.

Bw1—13 to 30 inches; strong brown (7.5YR 5/6) loam; weak fine subangular blocky structure; very friable; many fine and medium roots; few fine pores; 5 percent gravel; strongly acid; clear smooth boundary.

Bw2—30 to 38 inches; strong brown (7.5YR 5/8) loam; weak fine subangular blocky structure; friable; common fine and medium roots; few fine pores; 15 percent gravel; strongly acid; gradual smooth boundary.

BC—38 to 47 inches; brown (7.5YR 4/4) gravelly sandy loam; weak fine subangular blocky structure; friable; few fine roots; 20 percent gravel; very strongly acid; gradual smooth boundary.

C—47 to 60 inches; brown (7.5YR 5/4) gravelly sandy loam; massive; very friable; 25 percent gravel; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 35 percent above a depth of 40 inches and 0 to 60 percent below that depth
Reaction: Strongly acid to slightly acid, except in limed areas
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:

Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 4
Texture of fine-earth fraction—loam or fine sandy loam

BA horizon (if it occurs):

Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—loam or fine sandy loam

Bw horizon:

Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—loam or fine sandy loam

BC horizon (if it occurs):

Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—loam or fine sandy loam

C horizon:

Color—horizon has colors similar to those of the Bw horizon or is mottled or multicolored
Texture of fine-earth fraction—fine sandy loam, sandy loam, or loam

Unaka Series

Depth class: Moderately deep
Drainage class: Well drained
Slope range: Moderately steep to extremely steep (15 to 60 percent)
Landscape position: Mountain crests, shoulders, and side slopes
Parent material: Residuum from crystalline rocks

Typical Pedon

Unaka loam, 35 to 60 percent slopes; from Roaring Creek Road, take gravel road that intersects 2,000 feet southwest of the corner of Ripshin Lake, go to end of the gravel road, site is across the crest of Pine Mountain, about 1,600 feet south from the end of the gravel road:

A—0 to 6 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; common fine and medium roots; common fine flakes of mica; 5 percent gravel; strongly acid; abrupt smooth boundary.
AB—6 to 8 inches; brown (10YR 4/3) loam; weak medium subangular blocky structure; friable; common fine and medium roots; common fine flakes of mica; 5 percent gravel; very strongly acid; clear smooth boundary.
Bw—8 to 22 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; common fine and few medium roots; common fine flakes of mica; 5 percent gravel; very strongly acid; gradual smooth boundary.
C—22 to 24 inches; yellowish brown (10YR 5/6) loam; massive; friable; common fine flakes of mica; 5 percent gravel; very strongly acid; abrupt wavy boundary.
R—24 inches; schist bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches to hard bedrock
Content of rock fragments: About 5 to 20 percent in the A and B horizons and 5 to 35 percent in the C horizon
Reaction: Very strongly acid or strongly acid
Other characteristics: Few or common flakes of mica throughout the profile; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Texture of fine-earth fraction—loam or fine sandy loam

AB horizon (if it occurs):
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—3 or 4
Texture of fine-earth fraction—loam or fine sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture of fine-earth fraction—typically loam; range includes clay loam or sandy loam in some pedons

C horizon:
Hue—10YR
Value—5
Chroma—4 to 6
Texture of fine-earth fraction—sandy loam or loam; in some pedons the horizon consists of multicolored saprolite

Unicoi Series

Depth class: Shallow
Drainage class: Excessively drained
Slope range: Extremely steep (50 to 80 percent)
Landscape position: Points and sides slopes of mountain ridges
Parent material: Residuum weathered from metasandstone that has been affected by soil creep in some areas

Typical Pedon

Unicoi cobbly sandy loam in an area of Unicoi-Rock outcrop complex, 50 to 80 percent slopes; 800 feet south of the Nidever bench mark on Iron Mountain:

Oi—0 to 2 inches; slightly decomposed forest litter consisting of hardwood leaves, twigs, and pine needles.
A—2 to 3 inches; very dark grayish brown (10YR 3/2) cobbly sandy loam; weak fine granular structure; very friable; many fine and medium and few coarse roots; 30 percent cobbles and gravel; strongly acid; abrupt wavy boundary.
BE—3 to 7 inches; brown (10YR 5/3) cobbly sandy loam; weak fine granular structure; very friable; many fine and medium and few coarse roots; 35 percent cobbles and gravel; strongly acid; clear wavy boundary.
Bw—7 to 18 inches; yellowish brown (10YR 5/6) very

cobbly sandy loam; weak fine subangular blocky structure; very friable; common fine, medium, and coarse roots; 50 percent cobbles and gravel; strongly acid; abrupt wavy boundary.
R—18 inches; hard metasandstone rock.

Range in Characteristics

Depth to bedrock: 7 to 20 inches
Content of rock fragments: Typically averaging between 35 and 65 percent throughout the profile; ranging to as low as 15 percent in some surface horizons in some pedons
Reaction: Extremely acid to strongly acid
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—10YR
Value—3 to 6
Chroma—1 to 4
Texture of fine-earth fraction—sandy loam, fine sandy loam, or loam

BE horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—sandy loam, fine sandy loam, or loam

Unison Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Gently sloping and sloping (2 to 12 percent)
Landscape position: Stream terraces and footslopes
Parent material: Mixed alluvium or colluvium

Typical Pedon

Unison loam, 2 to 5 percent slopes; south on Highway 19E from Elizabethton to Treadway Road, 200 feet west on Treadway Road, 200 feet north of the road:

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) loam; common fine faint yellowish brown (10YR 5/8) mottles; weak medium granular structure; very friable; many fine and medium roots; many medium pores; 2 percent gravel; slightly acid; abrupt smooth boundary.
Bt1—8 to 15 inches; yellowish brown (10YR 5/8) clay; common fine distinct strong brown (7.5YR 5/8) mottles; strong fine subangular blocky structure; firm; many fine roots; common medium pores; common faint clay films on faces of peds; 2 percent gravel; moderately acid; diffuse wavy boundary.
Bt2—15 to 33 inches; strong brown (7.5YR 5/8) clay; many fine distinct yellowish brown (10YR 5/8) and few fine prominent red (2.5YR 4/6) mottles; strong fine subangular blocky structure; firm; common fine roots; common medium pores; common faint clay films on faces of peds; 2 percent gravel; strongly acid; gradual wavy boundary.
Bt3—33 to 49 inches; strong brown (7.5YR 5/8) clay loam; common fine distinct yellowish brown (10YR 5/8) and common fine prominent red (2.5YR 4/6) mottles; moderate fine subangular blocky structure; firm; few fine roots; common fine pores; few distinct clay films on faces of peds; 2 percent gravel; strongly acid; diffuse wavy boundary.
C—49 to 62 inches; yellowish red (5YR 5/6) loam; many medium and coarse prominent brownish yellow (10YR 6/6), red (2.5YR 4/6), and light yellowish brown (2.5Y 6/4) mottles; massive; very friable; few fine pores; 5 percent gravel and cobbles; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 72 inches
Content of rock fragments: 0 to 30 percent throughout the profile
Reaction: Very strongly acid to moderately acid, except in limed areas

Ap or A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture of fine-earth fraction—loam, fine sandy loam, or silt loam

Bt horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—3 to 8
Texture of fine-earth fraction—clay, silty clay, clay loam, or silty clay loam

C horizon:
Hue—2.5YR to 7.5YR
Value—4 to 8
Chroma—3 to 6

Texture of fine-earth fraction—loam, silt loam, clay loam, or silty clay loam

Wayah Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Moderately steep to extremely steep (15 to 95 percent)
Landscape position: Mountain crests, shoulders, and side slopes
Parent material: Residuum weathered from crystalline rocks that is affected in the upper part by soil creep in some areas

Typical Pedon

Wayah loam, windswept, 15 to 30 percent slopes, stony; in Mitchell County, North Carolina; from Bakersville, 10.3 miles north on North Carolina Highway 261 to Valley of Roan Road, 0.4 mile west on the road to the top of a ridge, take rightmost fork, 0.6 mile on the fork to a switchback, 0.1 mile past the switchback, in a road cut. (This pedon is in Mitchell County, North Carolina, where Wayah soils occur extensively. Wayah soils are not extensive in Carter County but are limited to areas adjoining North Carolina. Data from the soil surveys of Mitchell County and Avery County were used to represent the Wayah soils in Carter County.)

Oa—0 to 1 inch; mostly decomposed forest litter of spruce, fir, and northern hardwood.
A1—1 to 4 inches; very dark brown (10YR 2/2) loam; weak fine granular structure; very friable; many very fine and fine and common medium roots; many very fine and fine pores; very strongly acid; clear smooth boundary.
A2—4 to 16 inches; dark brown (7.5YR 3/2) loam; moderate medium subangular blocky structure; friable; common very fine and fine and few medium roots; common very fine and fine pores; strongly acid; gradual wavy boundary.
BA—16 to 23 inches; strong brown (7.5YR 4/6) loam; common coarse faint dark brown (7.5YR 3/3) mottles; moderate medium subangular blocky structure; friable; few very fine, fine, medium, and coarse roots; common very fine and fine pores; few fine flakes of mica; 5 percent gravel; strongly acid; gradual wavy boundary.
Bw1—23 to 32 inches; strong brown (7.5YR 5/8) loam; moderate medium subangular blocky structure; friable; few very fine and fine roots; common very fine and fine pores; few fine flakes of mica; 5 percent gravel and cobbles; strongly acid; clear wavy boundary.
Bw2—32 to 49 inches; strong brown (7.5YR 5/8) fine sandy loam; few fine faint strong brown (7.5YR 5/6) and few fine faint reddish yellow (7.5YR 6/8) mottles; moderate medium subangular blocky structure; friable; few very fine and fine roots; few very fine and fine pores; few very fine and fine very dark gray (N 3/0) manganese concretions; common fine flakes of mica; 5 percent gravel and cobbles; strongly acid; clear wavy boundary.
CB—49 to 55 inches; strong brown (7.5YR 5/8) fine sandy loam; massive; friable; few very fine and fine roots; few very fine pores; common very fine and fine very dark gray (N 3/0) manganese concretions; common fine flakes of mica; strongly acid; clear wavy boundary.
C—55 to 65 inches; multicolored saprolite that crushes to fine sandy loam; massive; very friable; few very fine and fine roots; few very fine pores; many very fine, fine, and medium very dark gray (N 3/0) manganese concretions; few fine flakes of mica; strongly acid; abrupt smooth boundary.
Cr—65 to 80 inches; multicolored, weathered bedrock that can be removed with difficulty with a spade.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 35 percent throughout the profile
Reaction: Extremely acid to moderately acid
Other characteristics: Few or common flakes of mica throughout the profile; transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

BA horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8

Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

CB horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—4 to 8
Texture of fine-earth fraction—loam, fine sandy loam, or sandy loam

C horizon:
Color—variable
Texture—saprolite that crushes to fine-earth of fine sandy loam, sandy loam, coarse sandy loam, or loamy sand

Cr layer:
Color—similar to the C horizon
Texture—layer is similar to the C horizon but is more consolidated and can be removed only with difficulty using hand tools

Waynesboro Series

Depth class: Very deep
Drainage class: Well drained
Slope range: Sloping and moderately steep (5 to 20 percent)
Landscape position: High stream terraces
Parent material: Thick alluvial deposits

Typical Pedon

Waynesboro loam, 12 to 20 percent slopes, eroded; south on State Route 19W from the Okalona community, left onto Anderson Road, 0.1 mile past where power lines cross the road, 25 feet south of the road:

Ap—0 to 5 inches; brown (10YR 4/3) loam; common fine distinct strong brown (7.5YR 4/6) mottles; weak fine granular structure; very friable; many fine and medium roots; many fine pores; 12 percent gravel; slightly acid; clear wavy boundary.
BA—5 to 11 inches; brown (7.5YR 4/4) clay loam; common fine distinct yellowish red (5YR 4/6) mottles; moderate fine subangular blocky structure; very friable; many fine and medium roots; many fine and medium pores; 12 percent gravel; slightly acid; clear wavy boundary.
Bt1—11 to 20 inches; yellowish red (5YR 4/6) clay; common medium distinct strong brown (7.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; many fine and few medium roots; many fine and medium pores; common faint clay films on faces of peds and lining larger pores; 12 percent gravel; strongly acid; gradual wavy boundary.
Bt2—20 to 32 inches; yellowish red (5YR 5/8) clay; strong fine angular blocky structure; firm; many fine roots; many fine pores; many distinct clay films on faces of peds and lining pores; 15 percent gravel; strongly acid; gradual wavy boundary.
Bt3—32 to 43 inches; yellowish red (5YR 5/8) clay loam; few fine distinct strong brown (7.5YR 5/8) and few fine prominent yellowish brown (10YR 5/8) mottles; strong fine angular blocky structure; firm; few fine roots; common fine pores; many distinct clay films on faces of peds and lining pores; 10 percent gravel; strongly acid; clear wavy boundary.
Bt4—43 to 60 inches; yellowish red (5YR 5/8) clay loam; few fine distinct red (2.5YR 4/8) and few fine prominent brownish yellow (10YR 6/8) mottles; moderate fine subangular blocky structure; friable; common fine pores; common distinct clay films on faces of peds and lining pores; 10 percent gravel and cobbles; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content and size of rock fragments: 0 to 25 percent in the surface layer and 0 to 15 percent in the subsoil; mostly gravel or cobbles
Reaction: Very strongly acid or strongly acid, except in limed areas
Other characteristics: Transitional horizons may occur between the major horizons, and these horizons have properties and features similar to those of adjacent horizons

Ap or A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture of fine-earth fraction—loam or fine sandy loam
Other features—in some pedons in wooded areas, the A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2

BA horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 or 6
Texture of fine-earth fraction—loam or clay loam

Bt horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—6 or 8
Texture of fine-earth fraction—clay loam, clay, or sandy clay

Other features—in some pedons the horizon has hue of 2.5YR, value of 3, and chroma of 6 in the lower part

Wehadkee Series

Depth class: Very deep
Drainage class: Poorly drained
Slope range: Nearly level (0 to 2 percent)
Landscape position: Flood plains along streams draining from the mountains
Parent material: Alluvium derived from crystalline rocks

Typical Pedon

Wehadkee fine sandy loam, occasionally flooded; east on U.S. Highway 19E from the Roan Mountain community to Walnut Mountain Road, turn left and go to Andy Arnett Road, turn left, 0.6 mile to a metal gate, 300 feet south from the gate:

Apg—0 to 7 inches; dark grayish brown (2.5Y 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; few fine flakes of mica; many fine distinct dark reddish gray (5YR 4/2) iron accumulations; moderately acid; abrupt smooth boundary.

Cg1—7 to 19 inches; dark grayish brown (2.5Y 4/2) loam; massive parting to coarse subangular blocky structure; friable; few fine roots; common fine and medium flakes of mica; many medium prominent strong brown (7.5YR 5/6) iron accumulations; moderately acid; gradual wavy boundary.

Cg2—19 to 60 inches; olive gray (5Y 4/2) loam; massive; friable; few fine roots; common fine and medium flakes of mica; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Rock fragments: Generally do not occur
Reaction: Moderately acid to neutral
Other characteristics: Few to many flakes of mica throughout the profile

Ap or A horizon:
Hue—10YR or 2.5Y or neutral
Value—4 to 6
Chroma—0 to 4
Texture of fine-earth fraction—fine sandy loam or loam

Cg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 7
Chroma—0 to 2
Texture of fine-earth fraction—loam or sandy loam
Other features—iron or manganese accumulations or mottles in shades of brown, yellow, or red occur in most pedons; stratified materials ranging from loamy to sandy occur in some pedons; sandy textures occur below a depth of 40 inches

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

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

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 40-inch profile or to a limiting layer is expressed as:

Very low	0 to 2 inches
Low	2 to 4 inches
Moderate	4 to 6 inches
High	more than 6 inches

Backslope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Canopy. The leafy crown of trees or shrubs.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

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

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane that typically takes the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Crystalline rock. A term describing both igneous and metamorphic rocks such as granite, gneiss, or schist.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep soils, 20 to 40 inches; shallow soils, 10 to 20 inches; and very shallow soils, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, through either drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained.* These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture.

Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called normal field capacity, normal moisture capacity, or capillary capacity.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragile (in tables). A soil that is easily damaged by use or disturbance.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

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

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

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

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Metasedimentary rock. Sedimentary rock such as shale, siltstone, or sandstone that has been slightly altered by metamorphic processes such as heat and pressure. Such rocks retain much of their original appearance and physical properties but have altered mineralogical characteristics. Examples are metasandstone and arkose.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

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

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, hardpan, fragipan, claypan, plowpan, and traffic pan.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

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

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse-grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

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

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Extremely acid	less than 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

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

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

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

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percent slope is vertical distance divided by horizontal distance, then multiplied by 100. Thus, a 20 percent slope is a vertical change of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent or 0 to 3 percent
Gently sloping	2 to 5 percent
Sloping	5 to 12 percent
Moderately steep	12 to 20 percent
Steep	20 to 35 percent
Very steep	35 to 50 percent
Extremely steep	more than 50 percent

(Other slope breaks are used for some of the map units in this survey. This is done to facilitate joining soil maps with adjacent survey areas.)

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

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

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

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

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

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

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse-grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1979-88 at Erwin, Tennessee)

Month	Temperature						Precipitation			
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temp. higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 in. or more
	°F	°F	°F	°F	°F	Units	In	In	In	
January--	42.8	21.8	32.3	67	-8	0	2.58	1.44	3.57	7
February-	49.7	26.3	38.0	75	2	7	3.56	2.37	4.63	7
March----	58.3	32.9	45.6	80	12	42	3.27	2.01	4.40	8
April----	67.2	40.8	54.0	89	21	170	4.20	2.33	5.86	9
May------	75.9	49.5	62.7	88	30	398	4.40	2.94	5.72	8
June-----	83.6	58.1	70.9	94	40	627	4.01	2.60	5.28	8
July-----	85.9	62.2	74.1	97	49	747	6.53	3.92	8.87	10
August---	85.3	61.5	73.4	97	48	725	3.21	1.65	4.57	8
September	79.3	54.8	67.1	90	35	513	3.29	1.46	4.84	6
October--	69.1	42.5	55.8	87	26	260	2.13	1.01	3.09	5
November-	61.3	35.5	48.4	80	16	98	3.30	2.06	4.41	7
December-	50.5	26.8	38.7	73	5	33	2.48	1.50	3.35	7
Yearly:										
Average-	67.4	42.7	55.1	---	---	---	---	---	---	---
Extreme-	101	-20	---	98	-8	---	---	---	---	---
Total---	---	---	---	---	---	3,620	42.96	36.40	47.55	90

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1979-88 at Erwin, Tennessee)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 13	Apr. 30	May 13
2 years in 10 later than--	Apr. 8	Apr. 24	May 7
5 years in 10 later than--	Mar. 28	Apr. 15	Apr. 25
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 24	Oct. 10	Sept. 26
2 years in 10 earlier than--	Oct. 30	Oct. 16	Oct. 1
5 years in 10 earlier than--	Nov. 11	Oct. 28	Oct. 12

Table 3.—Growing Season

(Recorded in the period 1979-88 at Erwin, Tennessee)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	204	179	153
8 years in 10	212	185	159
5 years in 10	227	196	169
2 years in 10	243	208	178
1 year in 10	251	213	184

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
BaF	Balsam very cobbly loam, windswept, 30 to 50 percent slopes, extremely	536	0.2
	stony	536	0.2
BbB	Bellamy loam, 2 to 5 percent slopes	32	*
Bd	Bloomingdale silty clay loam, occasionally flooded	102	*
BkC	Braddock loam, 5 to 12 percent slopes	908	0.4
BkD	Braddock loam, 12 to 20 percent slopes	68	*
BrB	Braxton silt loam, 2 to 5 percent slopes	1,744	0.8
BrC	Braxton silt loam, 5 to 12 percent slopes	6,433	2.9
BrD2	Braxton silt loam, 12 to 20 percent slopes, eroded	5,753	2.6
BrE2	Braxton silt loam, 20 to 35 percent slopes, eroded	4,057	1.8
BrF2	Braxton silt loam, 35 to 50 percent slopes, eroded	1,616	0.7
BsE	Brookshire silt loam, 20 to 35 percent slopes	73	*
BtD2	Braxton-Talbott-Rock outcrop complex, 12 to 20 percent slopes, eroded	3,538	1.6
BtE2	Braxton-Talbott-Rock outcrop complex, 20 to 35 percent slopes, eroded	5,443	2.4
BuD	Braxton-Urban land complex, 5 to 20 percent slopes	2,817	1.3
BxD	Burton-Craggey complex, windswept, 8 to 15 percent slopes, extremely bouldery	18	*
BxE	Burton-Craggey complex, windswept, 15 to 35 percent slopes, extremely bouldery	275	0.1
BzD	Burton-Wayah complex, windswept, 15 to 30 percent slopes, stony	70	*
BzE	Burton-Wayah complex, windswept, 30 to 50 percent slopes, stony	159	*
BzF	Burton-Wayah complex, windswept, 50 to 95 percent slopes, stony	2,072	0.9
CaD	Calvin channery silt loam, 12 to 20 percent slopes	1,836	0.8
CaE	Calvin channery silt loam, 20 to 35 percent slopes	2,789	1.3
CaF	Calvin channery silt loam, 35 to 50 percent slopes	5,461	2.5
CcF	Cataska channery silt loam, 35 to 50 percent slopes	6,064	2.7
CcG	Cataska channery silt loam, 50 to 80 percent slopes	1,679	0.8
ChE	Chestnut loam, 20 to 35 percent slopes	4,009	1.8
ChF	Chestnut loam, 35 to 50 percent slopes	7,963	3.6
CjD	Chestnut-Ashe complex, 15 to 30 percent slopes, very stony	3,033	1.4
CjE	Chestnut-Ashe complex, 30 to 50 percent slopes, very stony	3,187	1.4
CjF	Chestnut-Ashe complex, 50 to 95 percent slopes, very stony	4,854	2.2
CkG	Cleveland sandy loam, 50 to 80 percent slopes	3,412	1.5
Cn	Colvard fine sandy loam, occasionally flooded	3,334	1.5
Co	Colvard-Urban land complex	893	0.4
CrF	Craggey-Burton complex, windswept, 35 to 50 percent slopes, extremely bouldery	203	*
CsB	Craigsville cobbly sandy loam, 1 to 5 percent slopes, frequently flooded	88	*
DtE	Ditney sandy loam, 20 to 35 percent slopes	4,595	2.1
DtF	Ditney sandy loam, 35 to 50 percent slopes	14,002	6.3
DtG	Ditney sandy loam, 50 to 80 percent slopes	1,294	0.6
EdD	Edneytown loam, 12 to 20 percent slopes	3,059	1.4
EvE	Edneyville-Chestnut complex, 30 to 50 percent slopes, stony	1,444	0.6
EvF	Edneyville-Chestnut complex, 50 to 80 percent slopes, stony	635	0.3
GrE	Greenlee very cobbly loam, 20 to 35 percent slopes	1,326	0.6
GrF	Greenlee very cobbly loam, 35 to 50 percent slopes	4,696	2.1
GsD	Groseclose silty clay loam, 12 to 20 percent slopes	303	0.1
GsE	Groseclose silty clay loam, 20 to 35 percent slopes	531	0.2
JeE	Jeffrey loam, 20 to 35 percent slopes	40	*
JeF	Jeffrey loam, 35 to 50 percent slopes	22	*
KeC	Keener loam, 5 to 12 percent slopes	2,673	1.2
KeD	Keener loam, 12 to 20 percent slopes	2,599	1.2
KeE	Keener loam, 20 to 35 percent slopes	5,954	2.7
KeF	Keener loam, 35 to 50 percent slopes	6,614	3.0
LoC	Lonon loam, 5 to 12 percent slopes	3,758	1.7
LoD	Lonon loam, 12 to 20 percent slopes	4,619	2.1
LoE	Lonon loam, 20 to 35 percent slopes	2,087	0.9
MaE	Maymead loam, 20 to 35 percent slopes	219	*
MaF	Maymead loam, 35 to 50 percent slopes	2,473	1.1

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Acres	Percent
MoD	Montevallo channery silt loam, 12 to 20 percent slopes	561	0.3
MoE	Montevallo channery silt loam, 20 to 35 percent slopes	932	0.4
MoF	Montevallo channery silt loam, 35 to 50 percent slopes	1,936	0.9
MoG	Montevallo channery silt loam, 50 to 80 percent slopes	2,904	1.3
NcF	Northcove very stony loam, 35 to 50 percent slopes	1,642	0.7
NcG	Northcove very stony loam, 50 to 80 percent slopes	2,812	1.3
Pj	Pettyjon loam, rarely flooded	304	0.1
PmE	Plott loam, 15 to 30 percent slopes, stony	225	0.1
PnD	Porters gravelly loam, 15 to 30 percent slopes, stony	783	0.4
PnE	Porters gravelly loam, 30 to 50 percent slopes, stony	1,672	0.8
PnF	Porters gravelly loam, 50 to 80 percent slopes, stony	5,312	2.4
Po	Potomac gravelly loam, rarely flooded	3,148	1.4
ShB	Shady loam, 1 to 4 percent slopes, rarely flooded	2,612	1.2
SoE	Shelocta silt loam, 20 to 35 percent slopes	63	*
SpF	Spivey very cobbly loam, 35 to 50 percent slopes	1,061	0.5
SpG	Spivey very cobbly loam, 50 to 80 percent slopes	267	0.1
St	Steadman silt loam, occasionally flooded	798	0.4
TtC	Tate stony loam, 2 to 15 percent slopes	4,600	2.1
TtE	Tate stony loam, 15 to 35 percent slopes	5,156	2.3
TtF	Tate stony loam, 35 to 60 percent slopes	2,836	1.3
TuE	Tusquitee loam, 20 to 35 percent slopes	3,399	1.5
TuF	Tusquitee loam, 35 to 50 percent slopes	2,116	1.0
UaE	Unaka loam, 15 to 35 percent slopes	1,103	0.5
UaF	Unaka loam, 35 to 60 percent slopes	3,435	1.5
UcG	Unicoi-Rock outcrop complex, 50 to 80 percent slopes	13,894	6.2
UnB	Unison loam, 2 to 5 percent slopes	1,513	0.7
UnC	Unison loam, 5 to 12 percent slopes	1,298	0.6
UuC	Unison-Urban land complex, 5 to 12 percent slopes	1,486	0.7
W	Water	4,500	2.0
WaE	Wayah-Burton complex, windswept, 15 to 30 percent slopes, stony	36	*
WaF	Wayah-Burton complex, windswept, 30 to 50 percent slopes, very stony	21	*
WbC	Waynesboro loam, 5 to 12 percent slopes	1,298	0.6
WbD2	Waynesboro loam, 12 to 20 percent slopes, eroded	92	*
We	Wehadkee fine sandy loam, occasionally flooded	395	0.2
	Total	221,672	99.6

* Less than 0.1 percent.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Tall fescue-ladino	Tobacco
		Bu	Tons	Tons	AUM*	Lbs
BaF----------------- Balsam	7s	---	---	---	---	---
BbB----------------- Bellamy	2e	105.00	20.00	4.50	8.00	2,200.00
Bd------------------ Bloomingdale	3w	85.00	16.00	3.50	5.50	---
BkC----------------- Braddock	3e	115.00	23.00	4.50	7.50	2,300.00
BkD----------------- Braddock	4e	100.00	20.00	4.00	7.00	2,000.00
BrB----------------- Braxton	2e	95.00	22.00	3.00	---	2,500.00
BrC----------------- Braxton	3e	75.00	22.00	4.00	6.50	1,950.00
BrD2---------------- Braxton	4e	55.00	18.00	3.50	6.00	1,450.00
BrE2---------------- Braxton	6e	---	---	---	5.50	---
BrF2---------------- Braxton	7e	---	---	---	4.50	---
BsE----------------- Brookshire	6e	---	---	---	4.00	---
BtD2, BtE2---------- Braxton-Talbott Rock outcrop	6e	---	---	---	4.00	---
BuD. Braxton- Urban land						
BxD, BxE------------ Burton-Craggey	7s	---	---	---	---	---
BzD----------------- Burton-Wayah	6e	---	---	---	---	---
BzE, BzF------------ Burton-Wayah	7e	---	---	---	---	---
CaD----------------- Calvin	4e	60.00	12.00	5.00	6.00	---

See footnote at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Tall fescue-ladino	Tobacco
		Bu	Tons	Tons	AUM*	Lbs
CaE: Calvin	6e	---	---	---	4.50	---
CaF: Calvin	7e	---	---	---	---	---
CcF, CcG: Cataska	7s	---	---	---	---	---
ChE: Chestnut	7e	---	---	---	4.00	---
ChF: Chestnut	7e	---	---	---	3.50	---
CjD: Chestnut-Ashe	6e	70.00	---	2.50	4.00	---
CjE: Chestnut-Ashe	7e	---	---	---	3.50	---
CjF: Chestnut-Ashe	7e	---	---	---	---	---
CkG: Cleveland	7e	---	---	---	---	---
Cn: Colvard	2w	125.00	30.00	5.00	8.00	1,800.00
Co. Colvard-Urban land						
CrF: Craggey-Burton	7e	---	---	---	---	---
CsB: Craigsville	3s	70.00	12.00	1.50	4.50	---
DtE: Ditney	7e	---	---	---	3.50	---
DtF: Ditney	7e	---	---	---	3.00	---
DtG: Ditney	7e	---	---	---	---	---
EdD: Edneytown	6e	70.00	---	4.00	6.00	---
EvE: Edneyville-Chestnut	7e	---	---	---	4.00	---
EvF: Edneyville-Chestnut	7e	---	---	---	---	---

See footnote at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Tall fescue-ladino	Tobacco
		Bu	Tons	Tons	AUM*	Lbs
GrE, GrF----------- Greenlee	7s	---	---	---	---	---
GsD---------------- Groseclose	4e	80.00	---	3.00	6.50	1,450.00
GsE---------------- Groseclose	6e	---	---	1.50	6.00	---
JeE---------------- Jeffrey	6e	---	---	---	5.50	---
JeF---------------- Jeffrey	7e	---	---	---	4.50	---
KeC---------------- Keener	3e	95.00	15.00	3.40	7.00	2,500.00
KeD---------------- Keener	4e	85.00	13.00	3.20	6.00	2,300.00
KeE---------------- Keener	6e	---	---	2.50	5.50	---
KeF---------------- Keener	7e	---	---	---	4.50	---
LoC---------------- Lonon	3e	85.00	15.00	4.00	7.00	2,500.00
LoD---------------- Lonon	4e	75.00	13.00	4.00	5.00	2,000.00
LoE---------------- Lonon	6e	---	---	---	4.50	---
MaE---------------- Maymead	6e	---	---	---	5.50	---
MaF---------------- Maymead	7e	---	---	---	---	---
MoD---------------- Montevallo	7e	---	---	---	3.50	---
MoE---------------- Montevallo	7e	---	---	---	3.00	---
MoF, MoG----------- Montevallo	7e	---	---	---	---	---
NcF---------------- Northcove	7s	---	---	---	2.50	---
NcG---------------- Northcove	7s	---	---	---	---	---

See footnote at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Tall fescue-ladino	Tobacco
		Bu	Tons	Tons	AUM*	Lbs
Pj----------------- Pettyjon	1	120.00	30.00	5.00	8.50	2,200.00
PmE---------------- Plott	6e	---	---	---	6.00	---
PnD---------------- Porters	4e	75.00	---	4.00	7.00	---
PnE---------------- Porters	6e	---	---	---	6.00	---
PnF---------------- Porters	7e	---	---	---	---	---
Po----------------- Potomac	5s	---	---	2.00	3.00	---
ShB---------------- Shady	2e	120.00	22.00	5.00	7.50	2,700.00
SoE---------------- Shelocta	6e	---	---	---	6.00	---
SpF, SpG----------- Spivey	7s	---	---	---	---	---
St----------------- Steadman	2w	125.00	18.00	3.50	7.50	2,800.00
TtC---------------- Tate	3s	95.00	13.00	4.00	6.50	2,300.00
TtE---------------- Tate	7s	---	---	2.50	5.00	---
TtF---------------- Tate	7s	---	---	---	3.00	---
TuE---------------- Tusquitee	7e	---	---	---	4.00	---
TuF---------------- Tusquitee	7e	---	---	---	---	---
UaE---------------- Unaka	6e	---	---	2.30	5.00	---
UaF---------------- Unaka	7e	---	---	---	---	---
UcG---------------- Unicoi- Rock outcrop	7s	---	---	---	---	---
UnB---------------- Unison	2e	120.00	25.00	5.00	7.00	2,500.00

See footnote at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Tall fescue-ladino	Tobacco
		Bu	Tons	Tons	AUM*	Lbs
UnC: Unison	3e	115.00	23.00	4.70	6.50	2,300.00
UuC. Unison-Urban land						
W. Water						
WaE: Wayah-Burton	6e	---	---	---	---	---
WaF: Wayah-Burton	7e	---	---	---	---	---
WbC: Waynesboro	3e	95.00	13.00	4.70	7.00	2,300.00
WbD2: Waynesboro	4e	80.00	11.00	4.00	---	1,900.00
We: Wehadkee	6w	---	---	---	7.50	---

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Table 6.—Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
BbB	Bellamy loam, 2 to 5 percent slopes
BrB	Braxton silt loam, 2 to 5 percent slopes
Cn	Colvard fine sandy loam, occasionally flooded
Pj	Pettyjon loam, rarely flooded
ShB	Shady loam, 1 to 4 percent slopes, rarely flooded
St	Steadman silt loam, occasionally flooded
UnB	Unison loam, 2 to 5 percent slopes

Table 7.—Woodland Management and Productivity

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
BaF:										
Balsam	10R	Severe	Severe	Moderate	Slight	Moderate	Fraser fir	---	---	Fraser fir, red spruce
							northern red oak	---	---	
							red spruce	64	143	
							sugar maple	---	---	
							yellow birch	---	---	
BbB:										
Bellamy	7W	Slight	Slight	Slight	Slight	Moderate	northern red oak	75	57	sweetgum, yellow-poplar
							sweetgum	90	100	
							yellow-poplar	95	100	
Bd:										
Bloomingdale	5W	Slight	Severe	Severe	Slight	Severe	sweetgum	80	86	American sycamore, sweetgum
							water oak	80	72	
BkC:										
Braddock	4A	Slight	Moderate	Slight	Slight	Moderate	eastern white pine	95	172	eastern white pine, yellow-poplar
							northern red oak	80	57	
							yellow-poplar	90	86	
BkD:										
Braddock	4R	Moderate	Moderate	Slight	Slight	Moderate	eastern white pine	95	172	eastern white pine, yellow-poplar
							northern red oak	80	57	
							yellow-poplar	90	86	
BrB, BrC:										
Braxton	4A	Slight	Slight	Slight	Slight	Moderate	eastern redcedar	50	57	eastern redcedar, shortleaf pine
							northern red oak	70	57	
BrD2, BrE2, BrF2:										
Braxton	4R	Moderate	Moderate	Slight	Slight	Moderate	eastern redcedar	50	57	eastern redcedar, shortleaf pine
							northern red oak	70	57	
BsE:										
Brookshire	8R	Moderate	Moderate	Slight	Slight	Moderate	northern red oak	80	57	black walnut, eastern white pine, yellow-poplar
							yellow-poplar	100	114	
BtD2, BtE2:										
Braxton	4R	Moderate	Moderate	Slight	Slight	Moderate	eastern redcedar	50	57	eastern redcedar, shortleaf pine
							northern red oak	70	57	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordi- nation symbol	Management concerns: Erosion hazard	Equip- ment limita- tion	Seedling mortal- ity	Wind- throw hazard	Plant competi- tion	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
BtD2, BtE2:										
Talbott----------	3R	Moderate	Moderate	Slight	Slight	Moderate	eastern redcedar----	46	57	Virginia pine,
							northern red oak----	65	43	eastern redcedar,
							shortleaf pine------	64	100	shortleaf pine
Rock outcrop.										
BuD:										
Braxton----------	4A	Slight	Slight	Slight	Slight	Moderate	eastern redcedar----	50	57	eastern redcedar,
							northern red oak----	70	57	shortleaf pine
Urban land.										
BxD:										
Burton-----------	2D	Slight	Slight	Severe	Moderate	Slight	Fraser fir----------	---	---	---
							northern red oak----	40	29	
							red spruce----------	---	---	
Craggey----------	2D	Slight	Slight	Severe	Severe	Slight	Fraser fir----------	---	---	---
							northern red oak----	40	29	
							red spruce----------	---	---	
BxE:										
Burton-----------	2R	Moderate	Moderate	Severe	Moderate	Slight	Fraser fir----------	---	---	---
							northern red oak----	40	29	
							red spruce----------	---	---	
Craggey----------	2D	Moderate	Moderate	Severe	Severe	Slight	Fraser fir----------	---	---	---
							northern red oak----	40	29	
							red spruce----------	---	---	
BzD:										
Burton-----------	2R	Moderate	Moderate	Severe	Moderate	Slight	Fraser fir----------	---	---	---
							northern red oak----	40	29	
							red spruce----------	---	---	
Wayah------------	2R	Moderate	Moderate	Severe	Slight	Slight	Fraser fir----------	---	---	---
							northern red oak----	40	29	
							red spruce----------	---	---	
BzE, BzF:										
Burton-----------	2R	Severe	Severe	Severe	Moderate	Slight	Fraser fir----------	---	---	---
							northern red oak----	40	29	
							red spruce----------	---	---	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
BzE, BzF:										
Wayah	2R	Severe	Severe	Severe	Slight	Slight	Fraser fir	---	---	---
							northern red oak	40	29	
							red spruce	---	---	
CaD, CaE:										
Calvin	5F	Slight	Moderate	Moderate	Slight	Severe	northern red oak	77	57	Virginia pine, eastern white pine
							yellow-poplar	80	72	
CaF:										
Calvin	5R	Moderate	Severe	Moderate	Slight	Severe	northern red oak	77	57	Virginia pine, eastern white pine
							yellow-poplar	80	72	
CcF:										
Cataska	2R	Moderate	Severe	Moderate	Severe	Moderate	chestnut oak	50	29	Virginia pine
							pitch pine	50	---	
							scarlet oak	50	29	
CcG:										
Cataska	2R	Moderate	Severe	Severe	Severe	Moderate	chestnut oak	40	29	Virginia pine
							pitch pine	40	---	
							scarlet oak	40	29	
ChE:										
Chestnut	10R	Moderate	Moderate	Slight	Moderate	Moderate	black oak	71	57	Fraser fir, eastern white pine, shortleaf pine, yellow-poplar
							chestnut oak	69	57	
							eastern white pine	78	143	
							northern red oak	80	57	
							pitch pine	---	---	
							scarlet oak	68	57	
							shortleaf pine	---	---	
							white oak	70	57	
							yellow-poplar	97	100	
ChF:										
Chestnut	10R	Severe	Severe	Slight	Moderate	Moderate	black oak	71	57	Fraser fir, eastern white pine, shortleaf pine, yellow-poplar
							chestnut oak	69	57	
							eastern white pine	78	143	
							northern red oak	80	57	
							pitch pine	---	---	
							scarlet oak	68	57	
							shortleaf pine	---	---	
							white oak	70	57	
							yellow-poplar	97	100	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
CjD:										
Chestnut--------	10R	Moderate	Moderate	Slight	Moderate	Moderate	black oak----------	71	57	Fraser fir, eastern white pine, shortleaf pine, yellow-poplar
							chestnut oak--------	69	57	
							eastern white pine--	78	143	
							northern red oak----	80	57	
							pitch pine----------	---	---	
							scarlet oak---------	68	57	
							shortleaf pine------	---	---	
							white oak-----------	70	57	
							yellow-poplar-------	97	100	
Ashe------------	4R	Moderate	Moderate	Moderate	Moderate	Moderate	Virginia pine-------	62	100	Fraser fir, eastern white pine
							chestnut oak--------	70	57	
							eastern white pine--	81	143	
							northern red oak----	---	---	
							pitch pine----------	57	---	
							scarlet oak---------	---	---	
							shortleaf pine------	57	86	
CjE, CjF:										
Chestnut--------	10R	Severe	Severe	Slight	Moderate	Moderate	black oak----------	71	57	Fraser fir, eastern white pine, shortleaf pine, yellow-poplar
							chestnut oak--------	69	57	
							eastern white pine--	78	143	
							northern red oak----	80	57	
							pitch pine----------	---	---	
							scarlet oak---------	68	57	
							shortleaf pine------	---	---	
							white oak-----------	70	57	
							yellow-poplar-------	97	100	
Ashe------------	4R	Severe	Severe	Moderate	Moderate	Moderate	Virginia pine-------	62	100	Fraser fir, eastern white pine
							chestnut oak--------	70	57	
							eastern white pine--	81	143	
							northern red oak----	---	---	
							pitch pine----------	57	---	
							scarlet oak---------	---	---	
							shortleaf pine------	57	86	
CkG:										
Cleveland-------	3R	Severe	Severe	Moderate	Severe	Slight	Virginia pine-------	57	86	eastern white pine, shortleaf pine
							chestnut oak--------	45	29	
							eastern white pine--	70	114	
							hickory-------------	---	---	
							northern red oak----	60	43	
							pitch pine----------	---	---	
							scarlet oak---------	---	---	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Suggested trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
									cu ft/ac	
Cn:										
Colvard	8A	Slight	Slight	Slight	Slight	Severe	American sycamore	---	---	eastern white pine, yellow-poplar
							Virginia pine	75	114	
							black oak	---	---	
							eastern white pine	83	157	
							northern red oak	---	---	
							river birch	---	---	
							shortleaf pine	75	114	
							white ash	---	---	
							white oak	---	---	
							yellow-poplar	102	114	
Co:										
Colvard	8A	Slight	Slight	Slight	Slight	Severe	American sycamore	---	---	eastern white pine, yellow-poplar
							Virginia pine	75	114	
							black oak	---	---	
							eastern white pine	83	157	
							northern red oak	---	---	
							river birch	---	---	
							shortleaf pine	75	114	
							white ash	---	---	
							white oak	---	---	
							yellow-poplar	102	114	
Urban land.										
CrF:										
Craggey	2R	Severe	Severe	Severe	Severe	Slight	Fraser fir	---	---	---
							northern red oak	40	29	
							red spruce	---	---	
Burton	2R	Severe	Severe	Severe	Moderate	Slight	Fraser fir	---	---	---
							northern red oak	40	29	
							red spruce	---	---	
CsB:										
Craigsville	4F	Slight	Slight	Slight	Slight	Severe	Virginia pine	80	114	eastern white pine, yellow-poplar
							eastern white pine	90	172	
							northern red oak	80	57	
							yellow-poplar	95	100	
DtE:										
Ditney	3R	Slight	Moderate	Slight	Slight	Moderate	Virginia pine	60	86	Virginia pine, eastern white pine, shortleaf pine
							eastern white pine	70	114	
							northern red oak	60	43	
							shortleaf pine	60	86	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
DtF, DtG:										
Ditney	3R	Moderate	Severe	Slight	Slight	Moderate	Virginia pine	60	86	Virginia pine, eastern white pine, shortleaf pine
							eastern white pine	70	114	
							northern red oak	60	43	
							shortleaf pine	60	86	
EdD:										
Edneytown	8R	Moderate	Moderate	Moderate	Slight	Slight	Virginia pine	70	114	eastern white pine, shortleaf pine, yellow-poplar
							eastern white pine	80	143	
							hickory	58	---	
							pitch pine	70	---	
							shortleaf pine	70	114	
							southern red oak	60	43	
							white oak	60	43	
							yellow-poplar	90	86	
EvE, EvF:										
Edneyville	12R	Severe	Severe	Slight	Slight	Moderate	Virginia pine	75	114	Fraser fir, eastern white pine, northern red oak, shortleaf pine, yellow-poplar
							black oak	---	---	
							chestnut oak	---	---	
							eastern white pine	90	172	
							northern red oak	83	57	
							scarlet oak	---	---	
							shortleaf pine	64	100	
							yellow-poplar	98	100	
Chestnut	10R	Severe	Severe	Slight	Moderate	Moderate	black oak	71	57	Fraser fir, eastern white pine, shortleaf pine, yellow-poplar
							chestnut oak	69	57	
							eastern white pine	78	143	
							northern red oak	80	57	
							pitch pine	---	---	
							scarlet oak	68	57	
							shortleaf pine	---	---	
							white oak	70	57	
							yellow-poplar	97	100	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
GrE:										
Greenlee--------	8X	Moderate	Moderate	Moderate	Slight	Moderate	Virginia pine-------	---	---	eastern white pine, yellow-poplar
							black locust--------	---	---	
							eastern hemlock-----	---	---	
							eastern white pine--	98	186	
							northern red oak----	---	---	
							pitch pine----------	---	---	
							red maple-----------	---	---	
							scarlet oak---------	---	---	
							white oak-----------	---	---	
							yellow-poplar-------	101	114	
GrF:										
Greenlee--------	8R	Severe	Severe	Moderate	Slight	Moderate	Virginia pine-------	---	---	eastern white pine, yellow-poplar
							black locust--------	---	---	
							eastern hemlock-----	---	---	
							eastern white pine--	98	186	
							northern red oak----	---	---	
							pitch pine----------	---	---	
							red maple-----------	---	---	
							scarlet oak---------	---	---	
							white oak-----------	---	---	
							yellow-poplar-------	101	114	
GsD, GsE:										
Groseclose------	5R	Moderate	Moderate	Moderate	Slight	Moderate	eastern white pine--	90	172	eastern white pine, yellow-poplar
							northern red oak----	85	72	
							white oak-----------	85	72	
							yellow-poplar-------	86	86	
JeE:										
Jeffrey---------	5R	Slight	Moderate	Slight	Slight	Moderate	eastern white pine--	70	114	eastern white pine, yellow-poplar
							northern red oak----	60	43	
							yellow-poplar-------	80	72	
JeF:										
Jeffrey---------	5R	Moderate	Severe	Slight	Slight	Moderate	eastern white pine--	70	114	eastern white pine, yellow-poplar
							northern red oak----	60	43	
							yellow-poplar-------	80	72	
KeC:										
Keener----------	4A	Slight	Slight	Slight	Slight	Moderate	Virginia pine-------	80	114	Virginia pine, northern red oak, yellow-poplar
							northern red oak----	80	57	
							yellow-poplar-------	115	129	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
KeD, KeE:										
Keener----------	4R	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine-------	80	114	Virginia pine, northern red oak, yellow-poplar
							northern red oak----	80	57	
							yellow-poplar-------	115	129	
KeF:										
Keener----------	4R	Severe	Moderate	Slight	Slight	Moderate	Virginia pine-------	80	114	Virginia pine, northern red oak, yellow-poplar
							northern red oak----	80	57	
							yellow-poplar-------	115	129	
LoC:										
Lonon-----------	11A	Slight	Slight	Slight	Slight	Moderate	black oak-----------	---	---	eastern white pine
							chestnut oak--------	---	---	
							eastern white pine--	86	157	
							hickory-------------	---	---	
							northern red oak----	---	---	
							pitch pine----------	---	---	
							red maple-----------	---	---	
							scarlet oak---------	---	---	
							white oak-----------	---	---	
							yellow-poplar-------	74	57	
LoD, LoE:										
Lonon-----------	11R	Moderate	Moderate	Slight	Slight	Moderate	black oak-----------	---	---	eastern white pine
							chestnut oak--------	---	---	
							eastern white pine--	86	157	
							hickory-------------	---	---	
							northern red oak----	---	---	
							pitch pine----------	---	---	
							red maple-----------	---	---	
							scarlet oak---------	---	---	
							white oak-----------	---	---	
							yellow-poplar-------	74	57	
MaE:										
Maymead---------	6R	Moderate	Moderate	Slight	Slight	Severe	northern red oak----	75	57	black walnut, eastern white pine, yellow-poplar
							yellow-poplar-------	90	86	
MaF:										
Maymead---------	6R	Severe	Severe	Slight	Slight	Moderate	northern red oak----	75	57	black walnut, eastern white pine, yellow-poplar
							yellow-poplar-------	90	86	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
MoD, MoE:										
Montevallo------	5R	Severe	Moderate	Moderate	Moderate	Slight	Virginia pine-------	61	86	Virginia pine
							shortleaf pine------	61	86	
MoF, MoG:										
Montevallo------	5R	Severe	Severe	Severe	Moderate	Slight	Virginia pine-------	61	86	Virginia pine
							shortleaf pine------	61	86	
NcF, NcG:										
Northcove-------	10R	Severe	Severe	Moderate	Slight	Moderate	Virginia pine-------	---	---	eastern white pine
							black oak-----------	---	---	
							chestnut oak--------	---	---	
							eastern white pine--	80	143	
							pitch pine----------	---	---	
							scarlet oak---------	---	---	
							shortleaf pine------	---	---	
							white oak-----------	---	---	
							yellow-poplar-------	---	---	
Pj:										
Pettyjon--------	8A	Slight	Slight	Slight	Slight	Severe	white oak-----------	80	57	black walnut, yellow-poplar
							yellow-poplar-------	100	114	
PmE:										
Plott-----------	5R	Moderate	Moderate	Slight	Slight	Moderate	American beech------	---	---	Fraser fir, northern red oak, yellow-poplar
							black cherry--------	87	57	
							black locust--------	---	---	
							black oak-----------	---	---	
							eastern hemlock-----	---	---	
							northern red oak----	85	72	
							sugar maple---------	---	---	
							yellow birch--------	---	---	
							yellow-poplar-------	113	129	
PnD:										
Porters---------	7R	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine-------	80	114	Fraser fir, Norway spruce, Scotch pine, eastern white pine, yellow-poplar
							black locust--------	---	---	
							eastern white pine--	89	157	
							hickory-------------	---	---	
							northern red oak----	75	57	
							red maple-----------	---	---	
							shortleaf pine------	70	114	
							yellow-poplar-------	96	100	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
PnE, PnF:										
Porters	7R	Severe	Severe	Slight	Slight	Moderate	Virginia pine	80	114	Fraser fir, Norway spruce, Scotch pine, eastern white pine, yellow0poplar
							black locust	---	---	
							eastern white pine	89	157	
							hickory	---	---	
							northern red oak	75	57	
							red maple	---	---	
							shortleaf pine	70	114	
							yellow-poplar	96	100	
Po:										
Potomac	4F	Slight	Slight	Moderate	Slight	Moderate	American sycamore	---	---	American sycamore, black walnut, eastern white pine, northern red oak, white oak
							black walnut	---	---	
							eastern redcedar	---	---	
							eastern white pine	80	143	
							northern red oak	70	57	
							white oak	70	57	
ShB:										
Shady	8A	Slight	Slight	Slight	Slight	Moderate	hickory	---	---	black walnut, yellow-poplar
							southern red oak	80	57	
							white oak	80	57	
							yellow-poplar	100	114	
SoE:										
Shelocta	4R	Moderate	Moderate	Slight	Slight	Severe	American beech	---	---	black walnut, eastern white pine, northern red oak, shortleaf pine, white ash, white oak, yellow-poplar
							cucumbertree	---	---	
							red maple	81	---	
							scarlet oak	80	57	
							shortleaf pine	77	129	
							white oak	77	57	
							yellow-poplar	99	100	
SpF, SpG:										
Spivey	8R	Moderate	Severe	Moderate	Slight	Moderate	eastern white pine	90	172	eastern white pine, yellow-poplar
							northern red oak	80	57	
							yellow-poplar	100	114	
St:										
Steadman	5A	Slight	Slight	Slight	Slight	Severe	black walnut	---	---	black oak, black walnut, eastern white pine, northern red oak, shortleaf pine, white ash, white oak, yellow-poplar
							northern red oak	86	72	
							red maple	---	---	
							white ash	85	57	
							white oak	85	72	
							yellow-poplar	95	100	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
TtC:										
Tate------------	6A	Slight	Slight	Slight	Slight	Moderate	Virginia pine-------	---	---	Fraser fir, eastern white pine, yellow-poplar
							eastern white pine--	89	157	
							northern red oak----	---	---	
							shortleaf pine------	---	---	
							yellow-poplar-------	92	86	
TtE:										
Tate------------	6R	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine-------	---	---	Fraser fir, eastern white pine, yellow-poplar
							eastern white pine--	89	157	
							northern red oak----	---	---	
							shortleaf pine------	---	---	
							yellow-poplar-------	92	86	
TtF:										
Tate------------	6R	Severe	Severe	Slight	Slight	Moderate	Virginia pine-------	---	---	Fraser fir, eastern white pine, yellow-poplar
							eastern white pine--	89	157	
							northern red oak----	---	---	
							shortleaf pine------	---	---	
							yellow-poplar-------	92	86	
TuE:										
Tusquite--------	8R	Moderate	Moderate	Slight	Slight	Severe	black cherry--------	---	---	Fraser fir, black walnut, eastern white pine, yellow-poplar
							black locust--------	---	---	
							black walnut--------	---	---	
							eastern hemlock-----	---	---	
							eastern white pine--	100	186	
							hickory-------------	---	---	
							northern red oak----	---	---	
							white oak-----------	---	---	
							yellow birch--------	---	---	
							yellow-poplar-------	103	114	
TuF:										
Tusquite--------	8R	Severe	Severe	Slight	Slight	Severe	black cherry--------	---	---	Fraser fir, black walnut, eastern white pine, yellow-poplar
							black locust--------	---	---	
							black walnut--------	---	---	
							eastern hemlock-----	---	---	
							eastern white pine--	100	186	
							hickory-------------	---	---	
							northern red oak----	---	---	
							white oak-----------	---	---	
							yellow birch--------	---	---	
							yellow-poplar-------	103	114	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
UaE:										
Unaka-----------	6R	Slight	Moderate	Slight	Slight	Moderate	eastern white pine--	80	143	eastern white pine, yellow-poplar
							northern red oak----	70	57	
							yellow-poplar-------	90	86	
UaF:										
Unaka-----------	6R	Moderate	Severe	Slight	Slight	Moderate	eastern white pine--	80	143	eastern white pine, yellow-poplar
							northern red oak----	70	57	
							yellow-poplar-------	90	86	
UcG:										
Unicoi----------	3R	Moderate	Severe	Severe	Severe	Slight	Virginia pine-------	40	43	Virginia pine
							pitch pine----------	40	29	
Rock outcrop.										
UnB, UnC:										
Unison----------	5A	Slight	Slight	Slight	Slight	Severe	Virginia pine-------	80	114	black walnut, eastern white pine, yellow-poplar
							northern red oak----	85	72	
							yellow-poplar-------	95	100	
UuC:										
Unison----------	5A	Slight	Slight	Slight	Slight	Severe	Virginia pine-------	80	114	black walnut, eastern white pine, yellow-poplar
							northern red oak----	85	72	
							yellow-poplar-------	95	100	
Urban land.										
W.										
Water										
WaE:										
Wayah-----------	2R	Moderate	Moderate	Severe	Slight	Slight	Fraser fir----------	---	---	---
							northern red oak----	40	29	
							red spruce----------	---	---	
Burton----------	2R	Moderate	Moderate	Severe	Moderate	Slight	Fraser fir----------	---	---	---
							northern red oak----	40	29	
							red spruce----------	---	---	
WaF:										
Wayah-----------	2R	Severe	Severe	Severe	Slight	Slight	Fraser fir----------	---	---	---
							northern red oak----	40	29	
							red spruce----------	---	---	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
									cu ft/ac	
WaF:										
Burton----------	2R	Severe	Severe	Severe	Moderate	Slight	Fraser fir---------	---	---	---
							northern red oak----	40	29	
							red spruce---------	---	---	
WbC:										
Waynesboro------	6A	Slight	Slight	Slight	Slight	Moderate	southern red oak----	70	57	black walnut,
							white oak----------	70	57	shortleaf pine,
							yellow-poplar-------	90	86	yellow-poplar
WbD2:										
Waynesboro------	6R	Moderate	Moderate	Slight	Slight	Moderate	southern red oak----	70	57	black walnut,
							white oak----------	70	57	shortleaf pine,
							yellow-poplar-------	90	86	yellow-poplar
We:										
Wehadkee--------	8W	Slight	Severe	Moderate	Moderate	Severe	American sycamore---	---	---	green ash,
							green ash----------	---	---	sweetgum, yellow-
							river birch---------	---	---	poplar
							sweetgum-----------	94	114	
							water oak----------	91	86	
							white ash----------	---	---	
							willow oak---------	110	114	
							yellow-poplar-------	100	114	

Table 8.—Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
BaF:					
Balsam	Severe: large stones slope	Severe: slope	Severe: large stones slope small stones	Severe: slope	Severe: large stones slope
BbB:					
Bellamy	Moderate: wetness	Moderate: percs slowly wetness	Moderate: slope small stones wetness	Severe: erodes easily	Moderate: wetness
Bd:					
Bloomingdale	Severe: flooding wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
BkC:					
Braddock	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
BkD:					
Braddock	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
BrB:					
Braxton	Moderate: percs slowly	Moderate: percs slowly	Moderate: percs slowly slope	Slight	Slight
BrC:					
Braxton	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Moderate: slope
BrD2:					
Braxton	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
BrE2, BrF2:					
Braxton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
BsE:					
Brookshire	Severe: slope	Severe: slope	Severe: slope small stones	Severe: slope	Severe: slope
BtD2:					
Braxton	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Talbott	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Rock outcrop.					

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
BtE2:					
Braxton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Talbott	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Rock outcrop.					
BuD:					
Braxton	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Moderate: slope
Urban land.					
BxD:					
Burton	Severe: too acid	Severe: too acid	Severe: slope too acid	Slight	Moderate: large stones slope
Craggey	Severe: too acid depth to rock	Severe: too acid depth to rock	Severe: slope depth to rock	Severe: fragile	Severe: depth to rock
BxE:					
Burton	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope
Craggey	Severe: slope too acid depth to rock	Severe: slope too acid depth to rock	Severe: slope depth to rock	Severe: slope fragile	Severe: slope depth to rock
BzD:					
Burton	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Moderate: slope	Severe: slope
Wayah	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Moderate: slope	Severe: slope too acid
BzE, BzF:					
Burton	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope
Wayah	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope too acid
CaD:					
Calvin	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: slope	Severe: slope
CaE, CaF:					
Calvin	Severe: slope	Severe: slope	Severe: slope small stones	Severe: slope	Severe: slope

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CcF, CcG:					
Cataska	Severe: percs slowly slope	Severe: percs slowly slope	Severe: slope small stones	Severe: slope	Severe: slope depth to rock
ChE, ChF:					
Chestnut	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope
CjD:					
Chestnut	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Moderate: slope	Severe: slope
Ashe	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Moderate: slope	Severe: slope
CjE, CjF:					
Chestnut	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope
Ashe	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope
CkG:					
Cleveland	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
Cn:					
Colvard	Severe: flooding	Slight	Moderate: flooding small stones	Slight	Moderate: flooding droughty
Co:					
Colvard	Severe: flooding	Slight	Moderate: flooding small stones	Slight	Moderate: flooding droughty
Urban land.					
CrF:					
Craggey	Severe: slope too acid depth to rock	Severe: slope too acid depth to rock	Severe: slope depth to rock	Severe: slope fragile	Severe: slope depth to rock
Burton	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope
CsB:					
Craigsville	Severe: flooding	Moderate: flooding large stones	Severe: flooding small stones	Moderate: flooding large stones	Severe: flooding large stones

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
DtE, DtF, DtG:					
Ditney	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
EdD:					
Edneytown	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
EvE, EvF:					
Edneyville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Chestnut	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope
GrE, GrF:					
Greenlee	Severe: slope	Severe: slope	Severe: large stones slope small stones	Severe: large stones slope	Severe: large stones too acid droughty
GsD:					
Groseclose	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
GsE:					
Groseclose	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
JeE, JeF:					
Jeffrey	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
KeC:					
Keener	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
KeD:					
Keener	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
KeE, KeF:					
Keener	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
LoC:					
Lonon	Severe: too acid	Severe: too acid	Severe: slope too acid	Slight	Severe: too acid
LoD:					
Lonon	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Moderate: slope	Severe: slope too acid
LoE:					
Lonon	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope too acid

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
MaE, MaF:					
Maymead	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
MoD:					
Montevallo	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones	Moderate: slope	Severe: slope droughty
MoE, MoF, MoG:					
Montevallo	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones	Severe: slope	Severe: slope droughty
NcF, NcG:					
Northcove	Severe: slope too acid	Severe: slope too acid	Severe: large stones slope small stones	Moderate: large stones	Severe: slope too acid
Pj:					
Pettyjon	Severe: flooding	Slight	Slight	Slight	Slight
PmE:					
Plott	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Moderate: slope	Severe: slope too acid
PnD:					
Porters	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
PnE, PnF:					
Porters	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Po:					
Potomac	Severe: flooding small stones	Severe: small stones	Severe: small stones	Slight	Severe: droughty
ShB:					
Shady	Severe: flooding	Slight	Moderate: slope small stones	Slight	Slight
SoE:					
Shelocta	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
SpF, SpG:					
Spivey	Severe: slope small stones	Severe: slope small stones	Severe: large stones slope small stones	Severe: slope	Severe: slope small stones
St:					
Steadman	Severe: flooding	Moderate: percs slowly wetness	Moderate: flooding wetness	Moderate: wetness	Moderate: flooding wetness

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
TtC:					
Tate-----------	Moderate: large stones slope	Moderate: large stones slope	Severe: slope	Slight	Moderate: large stones
TtE, TtF:					
Tate-----------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Moderate: large stones
TuE, TuF:					
Tusquitee------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
UaE, UaF:					
Unaka----------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
UcG:					
Unicoi---------	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones slope small stones	Severe: slope	Severe: depth to rock
Rock outcrop.					
UnB:					
Unison---------	Slight	Slight	Moderate: slope small stones	Slight	Moderate: large stones
UnC:					
Unison---------	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: large stones slope
UuC:					
Unison---------	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: large stones slope
Urban land.					
W.					
Water					
WaE:					
Wayah----------	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Moderate: slope	Severe: slope too acid
Burton---------	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Moderate: slope	Severe: slope
WaF:					
Wayah----------	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope too acid
Burton---------	Severe: slope too acid	Severe: slope too acid	Severe: slope too acid	Severe: slope	Severe: slope

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
WbC:					
Waynesboro-----	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
WbD2:					
Waynesboro-----	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
We:					
Wehadkee-------	Severe: flooding wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness

Table 9.—Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
BaF:										
Balsam	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
BbB:										
Bellamy	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Bd:										
Bloomingdale	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
BkC:										
Braddock	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
BkD:										
Braddock	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
BrB, BrC:										
Braxton	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
BrD2, BrE2, BrF2:										
Braxton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
BsE:										
Brookshire	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
BtD2, BtE2:										
Braxton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Talbott	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Rock outcrop.										
BuD:										
Braxton	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Urban land.										
BxD:										
Burton	Fair	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Craggey	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Fair	Very poor

Table 9.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
BxE:										
Burton-------	Very poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Craggey------	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Fair	Very poor
BzD:										
Burton-------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Wayah--------	Poor	Fair	Good	Very poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
BzE, BzF:										
Burton-------	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Wayah--------	Very poor	Poor	Good	Very poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
CaD:										
Calvin-------	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
CaE, CaF:										
Calvin-------	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
CcF, CcG:										
Cataska------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
ChE, ChF:										
Chestnut-----	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
CjD:										
Chestnut-----	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Ashe---------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
CjE, CjF:										
Chestnut-----	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Ashe---------	Very poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
CkG:										
Cleveland----	Very poor	Very poor	Poor	Fair	Fair	Very poor	Very poor	Very poor	Poor	Very poor
Cn:										
Colvard------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Poor

Table 9.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
Co:										
Colvard	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Poor
Urban land.										
CrF:										
Craggey	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Fair	Very poor
Burton	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
CsB:										
Craigsville	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
DtE, DtF, DtG:										
Ditney	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
EdD:										
Edneytown	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
EvE, EvF:										
Edneyville	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Chestnut	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
GrE, GrF:										
Greenlee	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
GsD:										
Groseclose	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
GsE:										
Groseclose	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
JeE, JeF:										
Jeffrey	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
KeC:										
Keener	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
KeD:										
Keener	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
KeE:										
Keener	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor

Table 9.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
KeF: Keener	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
LoC: Lonon	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
LoD: Lonon	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Fair	Very poor
LoE: Lonon	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
MaE, MaF: Maymead	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
MoD: Montevallo	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
MoE, MoF, MoG: Montevallo	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
NcF, NcG: Northcove	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Pj: Pettyjon	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
PmE: Plott	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
PnD: Porters	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
PnE, PnF: Porters	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Po: Potomac	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
ShB: Shady	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
SoE: Shelocta	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 9.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
SpF, SpG:										
Spivey	Very poor	Very poor	Fair	Good	Poor	Very poor	Very poor	Poor	Fair	Very poor
St:										
Steadman	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
TtC:										
Tate	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
TtE:										
Tate	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
TtF:										
Tate	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
TuE:										
Tusquitee	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
TuF:										
Tusquitee	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
UaE, UaF:										
Unaka	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
UcG:										
Unicoi	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Rock outcrop.										
UnB:										
Unison	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
UnC:										
Unison	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
UuC:										
Unison	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Urban land.										
W:										
Water										
WaE:										
Wayah	Poor	Fair	Good	Very poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Burton	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor

Table 9.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
WaF:										
Wayah	Very poor	Poor	Good	Very poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Burton	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
WbC, WbD2:										
Waynesboro	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
We:										
Wehadkee	Very poor	Poor	Poor	Fair	Fair	Good	Fair	Poor	Fair	Fair

Table 10.—Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
BaF:						
Balsam	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: large stones slope
BbB:						
Bellamy	Severe: wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Moderate: low strength wetness	Moderate: wetness
Bd:						
Bloomingdale	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding low strength wetness	Severe: wetness
BkC:						
Braddock	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
BkD:						
Braddock	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
BrB:						
Braxton	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
BrC:						
Braxton	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
BrD2, BrE2, BrF2:						
Braxton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
BsE:						
Brookshire	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
BtD2, BtE2:						
Braxton	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
Talbott	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: low strength slope	Severe: slope
Rock outcrop.						
BuD:						
Braxton	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
Urban land.						
BxD:						
Burton	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: frost action slope depth to rock	Moderate: large stones slope
Craggey	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock
BxE:						
Burton	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
Craggey	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
BzD, BzE, BzF:						
Burton	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
Wayah	Severe: slope cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope too acid

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CaD, CaE, CaF:						
Calvin	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CcF, CcG:						
Cataska	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
ChE, ChF:						
Chestnut	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CjD, CjE, CjF:						
Chestnut	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Ashe	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
CkG:						
Cleveland	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
Cn:						
Colvard	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding droughty
Co:						
Colvard	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding droughty
Urban land.						
CrF:						
Craggey	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CrF:						
Burton	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
CsB:						
Craigsville	Severe: large stones cutbanks cave	Severe: flooding large stones	Severe: flooding large stones	Severe: flooding large stones	Severe: flooding large stones	Severe: flooding large stones
DtE, DtF, DtG:						
Ditney	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
EdD:						
Edneytown	Severe: slope cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
EvE, EvF:						
Edneyville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Chestnut	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
GrE, GrF:						
Greenlee	Severe: large stones slope cutbanks cave	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones too acid droughty
GsD, GsE:						
Groseclose	Severe: slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope
JeE, JeF:						
Jeffrey	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
KeC:						
Keener	Moderate: large stones slope	Moderate: large stones slope	Moderate: large stones slope	Severe: slope	Moderate: large stones slope	Moderate: slope

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
KeD, KeE, KeF:						
Keener	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
LoC:						
Lonon	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Severe: too acid
LoD, LoE:						
Lonon	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope too acid
MaE, MaF:						
Maymead	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
MoD, MoE, MoF, MoG:						
Montevallo	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope droughty
NcF, NcG:						
Northcove	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: slope too acid
Pj:						
Pettyjon	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Slight
PmE:						
Plott	Severe: slope cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope too acid
PnD, PnE, PnF:						
Porters	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Po:						
Potomac	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding large stones	Severe: droughty
ShB:						
Shady	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Slight

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
SoE:						
Shelocta	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
SpF, SpG:						
Spivey	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope small stones
St:						
Steadman	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: flooding frost action low strength	Moderate: flooding wetness
TtC:						
Tate	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: large stones
TtE, TtF:						
Tate	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Moderate: large stones
TuE, TuF:						
Tusquitee	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
UaE, UaF:						
Unaka	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
UcG:						
Unicoi	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: depth to rock
Rock outcrop.						
UnB:						
Unison	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Moderate: large stones
UnC:						
Unison	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: large stones slope

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
UuC:						
Unison	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: large stones slope
Urban land.						
W.						
Water						
WaE, WaF:						
Wayah	Severe: slope cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope too acid
Burton	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
WbC:						
Waynesboro	Moderate: slope too clayey	Moderate: slope	Moderate: slope	Severe: slope	Moderate: low strength slope	Moderate: slope
WbD2:						
Waynesboro	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
We:						
Wehadkee	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding low strength wetness	Severe: wetness

Table 11.—Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BaF:					
Balsam	Severe: slope	Severe: large stones seepage slope	Severe: large stones seepage slope	Severe: seepage slope	Poor: slope small stones too acid
BbB:					
Bellamy	Severe: percs slowly wetness	Severe: wetness	Severe: wetness	Moderate: wetness	Fair: too clayey wetness
Bd:					
Bloomingdale	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding too clayey wetness	Severe: flooding wetness	Poor: hard to pack too clayey wetness
BkC:					
Braddock	Moderate: percs slowly slope	Severe: seepage slope	Severe: seepage too clayey	Moderate: slope	Poor: hard to pack too clayey
BkD:					
Braddock	Severe: slope	Severe: seepage slope	Severe: seepage slope too clayey	Severe: slope	Poor: hard to pack slope too clayey
BrB:					
Braxton	Severe: percs slowly	Moderate: seepage slope	Severe: too clayey	Slight	Poor: hard to pack too clayey
BrC:					
Braxton	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: hard to pack too clayey
BrD2, BrE2, BrF2:					
Braxton	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey	Severe: slope	Poor: hard to pack slope too clayey
BsE:					
Brookshire	Severe: slope poor filter	Severe: seepage slope	Severe: seepage slope depth to rock	Severe: seepage slope	Poor: slope small stones
BtD2, BtE2:					
Braxton	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey	Severe: slope	Poor: hard to pack slope too clayey

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BtD2, BtE2:					
Talbott	Severe: percs slowly, slope, depth to rock	Severe: slope, depth to rock	Severe: slope, too clayey, depth to rock	Severe: slope, depth to rock	Poor: hard to pack, too clayey, depth to rock
Rock outcrop.					
BuD:					
Braxton	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: hard to pack, too clayey
Urban land.					
BxD:					
Burton	Severe: depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, depth to rock	Severe: seepage, depth to rock	Poor: too acid, depth to rock
Craggey	Severe: depth to rock	Severe: slope, depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Poor: small stones, depth to rock
BxE:					
Burton	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Poor: slope, too acid, depth to rock
Craggey	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Poor: slope, small stones, depth to rock
BzD, BzE, BzF:					
Burton	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Poor: slope, too acid, depth to rock
Wayah	Severe: slope	Severe: seepage, slope	Severe: seepage, slope, too acid	Severe: seepage, slope	Poor: slope, small stones
CaD, CaE, CaF:					
Calvin	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Poor: slope, small stones, depth to rock
CcF, CcG:					
Cataska	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: seepage, small stones, depth to rock

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
ChE, ChF:					
Chestnut	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
CjD, CjE, CjF:					
Chestnut	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
Ashe	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope too acid depth to rock
CkG:					
Cleveland	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
Cn:					
Colvard	Severe: flooding	Severe: flooding seepage	Severe: flooding seepage wetness	Severe: flooding seepage	Good
Co:					
Colvard	Severe: flooding	Severe: flooding seepage	Severe: flooding seepage wetness	Severe: flooding seepage	Good
Urban land.					
CrF:					
Craggey	Severe: slope depth to rock	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Burton	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope too acid depth to rock
CsB:					
Craigsville	Severe: flooding large stones poor filter	Severe: flooding large stones seepage	Severe: flooding large stones seepage	Severe: flooding seepage	Poor: large stones seepage
DtE, DtF, DtG:					
Ditney	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope depth to rock

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
EdD:					
Edneytown	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: seepage slope	Poor: slope
EvE, EvF:					
Edneyville	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: seepage slope	Poor: slope
Chestnut	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
GrE, GrF:					
Greenlee	Severe: large stones slope	Severe: large stones seepage slope	Severe: large stones seepage slope	Severe: seepage slope	Poor: large stones slope too acid
GsD, GsE:					
Groseclose	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey	Severe: slope	Poor: hard to pack slope too clayey
JeE, JeF:					
Jeffrey	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
KeC:					
Keener	Moderate: large stones percs slowly slope	Severe: seepage slope	Severe: seepage	Moderate: slope	Fair: large stones slope too clayey
KeD, KeE, KeF:					
Keener	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: slope	Poor: slope
LoC:					
Lonon	Moderate: percs slowly slope	Severe: slope	Severe: too acid	Moderate: slope	Poor: too acid
LoD, LoE:					
Lonon	Severe: slope	Severe: slope	Severe: slope too acid	Severe: slope	Poor: slope too acid
MaE, MaF:					
Maymead	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: seepage slope	Poor: slope small stones

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
MoD, MoE, MoF, MoG:					
Montevallo-----	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
NcF, NcG:					
Northcove-------	Severe: large stones slope	Severe: large stones seepage slope	Severe: large stones seepage slope	Severe: seepage slope	Poor: large stones slope too acid
Pj:					
Pettyjon--------	Moderate: flooding percs slowly	Moderate: seepage	Moderate: flooding	Moderate: flooding	Good
PmE:					
Plott-----------	Severe: slope	Severe: seepage slope	Severe: seepage slope too acid	Severe: seepage slope	Poor: slope
PnD, PnE, PnF:					
Porters---------	Severe: slope	Severe: seepage slope	Severe: seepage slope depth to rock	Severe: seepage slope	Poor: slope
Po:					
Potomac---------	Severe: poor filter	Severe: large stones seepage	Severe: seepage wetness	Severe: seepage	Poor: seepage small stones too sandy
ShB:					
Shady-----------	Moderate: flooding	Severe: seepage	Severe: seepage	Severe: seepage	Poor: small stones
SoE:					
Shelocta--------	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: slope	Poor: slope small stones
SpF, SpG:					
Spivey----------	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: seepage slope	Poor: slope small stones
St:					
Steadman--------	Severe: flooding percs slowly wetness	Severe: flooding seepage wetness	Severe: flooding seepage wetness	Severe: flooding wetness	Fair: too clayey wetness
TtC:					
Tate------------	Moderate: percs slowly slope	Severe: seepage slope	Severe: seepage	Moderate: slope	Fair: large stones slope too clayey

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
TtE, TtF:					
Tate	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: slope	Poor: slope
TuE, TuF:					
Tusquitee	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: seepage slope	Poor: slope
UaE, UaF:					
Unaka	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: area reclaim slope
UcG:					
Unicoi	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Rock outcrop.					
UnB:					
Unison	Moderate: percs slowly	Severe: seepage	Severe: seepage too clayey	Slight	Poor: hard to pack small stones too clayey
UnC:					
Unison	Moderate: percs slowly slope	Severe: seepage slope	Severe: seepage too clayey	Moderate: slope	Poor: hard to pack small stones too clayey
UuC:					
Unison	Moderate: percs slowly slope	Severe: seepage slope	Severe: seepage too clayey	Moderate: slope	Poor: hard to pack small stones too clayey
Urban land.					
W.					
Water					
WaE, WaF:					
Wayah	Severe: slope	Severe: seepage slope	Severe: seepage slope too acid	Severe: seepage slope	Poor: slope small stones
Burton	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope too acid depth to rock
WbC:					
Waynesboro	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: hard to pack slope too clayey

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
WbD2:					
Waynesboro------	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
We:					
Wehadkee--------	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Poor: thin layer wetness

Table 12.—Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
BaF:				
Balsam	Poor: slope	Probable	Probable	Poor: area reclaim, large stones, slope
BbB:				
Bellamy	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Bd:				
Bloomingdale	Poor: low strength, wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, wetness
BkC:				
Braddock	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones, too clayey
BkD:				
Braddock	Fair: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones, too clayey
BrB, BrC:				
Braxton	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
BrD2:				
Braxton	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
BrE2, BrF2:				
Braxton	Poor: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
BsE:				
Brookshire	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
BtD2:				
Braxton	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
Talbott	Poor: low strength, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
Rock outcrop.				

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
BtE2:				
Braxton	Poor: low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
Talbott	Poor: low strength slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
Rock outcrop.				
BuD:				
Braxton	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Urban land.				
BxD:				
Burton	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too acid
Craggey	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
BxE:				
Burton	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
Craggey	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
BzD:				
Burton	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
Wayah	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
BzE, BzF:				
Burton	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
Wayah	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
CaD:				
Calvin	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
CaE, CaF:				
Calvin	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
CcF, CcG:				
Cataska	Poor: slope depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope small stones depth to rock
ChE, ChF:				
Chestnut	Poor: slope depth to rock	Improbable: thin layer excess fines	Improbable: thin layer excess fines	Poor: slope small stones too acid
CjD:				
Chestnut	Poor: depth to rock	Improbable: thin layer excess fines	Improbable: thin layer excess fines	Poor: slope small stones too acid
Ashe	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
CjE, CjF:				
Chestnut	Poor: slope depth to rock	Improbable: thin layer excess fines	Improbable: thin layer excess fines	Poor: slope small stones too acid
Ashe	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
CkG:				
Cleveland	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Cn:				
Colvard	Good	Probable	Probable	Poor: area reclaim
Co:				
Colvard	Good	Probable	Probable	Poor: area reclaim
Urban land.				

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
CrF:				
Craggey	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
Burton	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
CsB:				
Craigsville	Poor: large stones	Improbable: large stones	Improbable: large stones	Poor: area reclaim small stones
DtE, DtF, DtG:				
Ditney	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
EdD:				
Edneytown	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
EvE, EvF:				
Edneyville	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Chestnut	Poor: slope depth to rock	Improbable: thin layer excess fines	Improbable: thin layer excess fines	Poor: slope small stones too acid
GrE, GrF:				
Greenlee	Poor: large stones slope	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim large stones too acid
GsD:				
Groseclose	Poor: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
GsE:				
Groseclose	Poor: low strength shrink-swell slope	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
JeE, JeF:				
Jeffrey	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
KeC:				
Keener	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
KeD: Keener-------------	Fair: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones slope
KeE, KeF: Keener-------------	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones slope
LoC: Lonon--------------	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim too acid
LoD: Lonon--------------	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim too acid
LoE: Lonon--------------	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim too acid
MaE, MaF: Maymead------------	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
MoD: Montevallo---------	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
MoE, MoF, MoG: Montevallo---------	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
NcF, NcG: Northcove----------	Poor: large stones slope	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim large stones too acid
Pj: Pettyjon-----------	Good	Improbable: excess fines	Improbable: excess fines	Good
PmE: Plott--------------	Fair: slope	Probable	Probable	Poor: slope

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
PnD:				
Porters	Fair: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
PnE, PnF:				
Porters	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Po:				
Potomac	Fair: large stones	Probable	Probable	Poor: area reclaim small stones too sandy
ShB:				
Shady	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
SoE:				
Shelocta	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
SpF, SpG:				
Spivey	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
St:				
Steadman	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim too clayey
TtC:				
Tate	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones
TtE, TtF:				
Tate	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones slope
TuE, TuF:				
Tusquitee	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
UaE, UaF:				
Unaka	Poor: area reclaim slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
UcG:				
Unicoi	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop.				
UnB, UnC:				
Unison	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
UuC:				
Unison	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones too clayey
Urban land.				
W.				
Water				
WaE:				
Wayah	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Burton	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
WaF:				
Wayah	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Burton	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
WbC:				
Waynesboro	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
WbD2:				
Waynesboro	Fair: low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
We:				
Wehadkee	Poor: low strength wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness

Table 13.—Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
BaF:							
Balsam	Severe: seepage slope	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
BbB:							
Bellamy	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: slope	Limitation: erodes easily slope wetness	Limitation: erodes easily wetness	Limitation: erodes easily
Bd:							
Bloomingdale	Moderate: seepage	Severe: hard to pack wetness	Moderate: slow refill	Limitation: flooding	Limitation: erodes easily flooding wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
BkC, BkD:							
Braddock	Severe: seepage slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
BrB:							
Braxton	Moderate: seepage	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
BrC, BrD2, BrE2, BrF2:							
Braxton	Severe: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
BsE:							
Brookshire	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope droughty	Limitation: slope	Limitation: slope

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
BtD2, BtE2:							
Braxton------------	Severe: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Talbott------------	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
Rock outcrop.							
BuD:							
Braxton------------	Severe: slope	Moderate: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Urban land.							
BxD, BxE:							
Burton-------------	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
Craggey------------	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
BzD, BzE, BzF:							
Burton-------------	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
Wayah--------------	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope too acid	Limitation: slope	Limitation: slope
CaD, CaE, CaF:							
Calvin-------------	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
CcF, CcG:							
Cataska------------	Severe: slope depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
ChE, ChF:							
Chestnut	Severe: seepage slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
CjD:							
Chestnut	Severe: seepage slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
CjD, CjE, CjF:							
Ashe	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
CkG:							
Cleveland	Severe: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Cn:							
Colvard	Severe: seepage	Severe: piping	Severe: cutbanks cave	Limitation: deep to water	Limitation: flooding soil blowing droughty	Limitation: soil blowing	Limitation: droughty
Co:							
Colvard	Severe: seepage	Severe: piping	Severe: cutbanks cave	Limitation: deep to water	Limitation: flooding soil blowing droughty	Limitation: soil blowing	Limitation: droughty
Urban land.							
CrF:							
Craggey	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Burton	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
CsB: Craigsville	Severe: seepage	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones too sandy soil blowing	Limitation: large stones droughty
DtE, DtF, DtG: Ditney	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
EdD: Edneytown	Severe: seepage slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope too sandy	Limitation: slope
EvE, EvF: Edneyville	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope droughty	Limitation: slope	Limitation: slope droughty
Chestnut	Severe: seepage slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
GrE, GrF: Greenlee	Severe: seepage slope	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope too sandy	Limitation: large stones slope droughty
GsD, GsE: Groseclose	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Limitation: percs slowly slope	Limitation: percs slowly slope
JeE, JeF: Jeffrey	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
KeC, KeD, KeE, KeF: Keener	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones slope	Limitation: large stones slope
LoC, LoD, LoE: Lonon	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope too acid	Limitation: slope	Limitation: slope
MaE, MaF: Maymead	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones slope	Limitation: large stones slope
MoD, MoE, MoF, MoG: Montevallo	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
NcF, NcG: Northcove	Severe: seepage slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
Pj: Pettyjon	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily
PmE: Plott	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope too acid	Limitation: slope	Limitation: slope
PnD, PnE, PnF: Porters	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Po: Potomac	Severe: seepage	Severe: large stones seepage	Severe: cutbanks cave	Limitation: deep to water	Limitation: large stones droughty	Limitation: large stones too sandy soil blowing	Limitation: large stones droughty

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
ShB: Shady	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Favorable	Favorable	Favorable
SoE: Shelocta	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
SpF, SpG: Spivey	Severe: seepage slope	Moderate: large stones seepage piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
St: Steadman	Severe: seepage	Severe: piping wetness	Severe: slow refill	Limitation: flooding frost action	Limitation: flooding wetness	Limitation: erodes easily wetness	Limitation: erodes easily
TtC, TtE, TtF: Tate	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
TuE, TuF: Tusquitee	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
UaE, UaF: Unaka	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
UcG: Unicoi	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Rock outcrop.							

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
UnB:							
Unison	Severe: seepage	Moderate: hard to pack large stones thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones	Limitation: large stones
UnC:							
Unison	Severe: seepage slope	Moderate: hard to pack large stones thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones slope	Limitation: large stones slope
UuC:							
Unison	Severe: seepage slope	Moderate: hard to pack large stones thin layer	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones slope	Limitation: large stones slope
Urban land.							
W.							
Water							
WaE, WaF:							
Wayah	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope too acid	Limitation: slope	Limitation: slope
Burton	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
WbC, WbD2:							
Waynesboro	Severe: slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
We:							
Wehadkee	Moderate: seepage	Severe: piping wetness	Moderate: slow refill	Limitation: flooding	Limitation: flooding wetness soil blowing	Limitation: wetness soil blowing	Limitation: wetness

Table 14.—Engineering Index Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BaF:												
Balsam----------	0-12	Very cobbly loam	GM, SM	A-1-b, A-2-5	10-40	20-40	55-85	50-75	35-60	15-35	41-70	NP-7
	12-22	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	GM, SM	A-1-b, A-2-4	5-40	15-45	51-85	45-75	34-60	15-35	15-40	NP-7
	22-48	Very cobbly fine sandy loam, very stony loam, very stony fine sandy loam	GM, SM	A-1-b, A-2-4	5-40	15-45	51-85	45-75	34-60	15-35	15-40	NP-7
	48-60	Very cobbly fine sandy loam, very stony coarse sandy loam, very stony loam	GP-GM, GM, SM, SP-SM	A-1, A-2-4, A-3	5-40	15-45	33-85	23-75	14-60	5-25	15-30	NP-7
BbB:												
Bellamy---------	0-19	Loam	CL, ML, CL-ML	A-4	0	0	90-100	85-100	75-100	55-85	20-35	2-10
	19-32	Loam, clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-100	55-85	25-40	6-16
	32-54	Loam, clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-100	55-85	25-40	6-16
	54-72	Loam, clay loam, sandy clay loam	CL, SC-SM, CL-ML, SC	A-4, A-6	0	0	90-100	85-100	70-90	40-80	25-40	6-16
Bd:												
Bloomingdale----	0-6	Silty clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	60-95	25-40	5-15
	6-60	Silty clay loam, silty clay, clay	CL, CH, MH, ML	A-6, A-7	0	0	95-100	95-100	90-100	85-95	35-55	12-30

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BkC, BkD:												
Braddock--------	0-4	Loam	CL, SM, ML, SC	A-2, A-4	0	0-5	85-100	75-100	50-85	25-65	0-30	NP-10
	4-62	Clay loam, gravelly clay, very gravelly sandy clay	CL, CH, GC, SC	A-2, A-7	0	0-15	80-100	30-100	25-95	20-90	42-66	15-35
BrB, BrC:												
Braxton---------	0-6	Silt loam	CL	A-4, A-6	0	0	80-100	75-100	70-90	65-85	25-40	7-18
	6-62	Clay, silty clay	CH, CL	A-7	0	0	80-100	75-100	65-95	60-90	45-62	20-32
BrD2, BrE2, BrF2:												
Braxton---------	0-7	Silt loam	CL	A-4, A-6	0	0	80-100	75-100	70-90	65-85	25-40	7-18
	7-62	Clay, silty clay	CH, CL	A-7	0	0	80-100	75-100	65-95	60-90	45-62	20-32
BsE:												
Brookshire------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-65	Silt loam	GC, CL, GM, ML	A-4	0-5	0-5	55-85	50-85	45-75	35-65	18-30	3-10
BtD2, BtE2:												
Braxton---------	0-7	Silt loam	CL	A-4, A-6	0	0	80-100	75-100	70-90	65-85	25-40	7-18
	7-62	Clay, silty clay	CH, CL	A-7	0	0	80-100	75-100	65-95	60-90	45-62	20-32
Talbott---------	0-3	Silt loam	CL	A-4, A-6	0	0-5	95-100	90-100	85-95	75-95	25-40	8-16
	3-28	Clay, silty clay	CH, CL	A-7	0	0-10	95-100	90-100	85-95	80-95	41-80	20-45
	28-40	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
BuD:												
Braxton---------	0-7	Silt loam	CL	A-4, A-6	0	0	80-100	75-100	70-90	65-85	25-40	7-18
	7-62	Clay, silty clay	CH, CL	A-7	0	0	80-100	75-100	65-95	60-90	45-62	20-32
Urban land------	0-6	Variable	---	---	---	---	---	---	---	---	0-14	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BxD, BxE:												
Burton----------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-14	Loam	SM	A-4, A-2, A-5	0-5	0-15	80-100	80-100	60-90	30-49	30-50	NP-7
	14-24	Sandy loam, gravelly sandy loam, loam	SC-SM, SM	A-2, A-4	0-5	5-15	73-100	70-95	57-95	25-49	25-35	NP-7
	24-30	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Craggey---------	0-13	Loam	SC-SM, SM	A-4, A-2, A-5	0-2	0-5	90-100	85-100	65-95	25-49	25-50	NP-7
	13-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
BzD, BzE, BzF:												
Burton----------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-14	Loam	SM	A-4, A-2, A-5	0-5	0-15	80-100	80-100	60-90	30-49	30-50	NP-7
	14-24	Sandy loam, gravelly sandy loam, loam	SC-SM, SM	A-2, A-4	0-5	5-15	73-100	70-95	57-95	25-49	25-35	NP-7
	24-30	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Wayah-----------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-23	Loam	ML, SM	A-2, A-4, A-5	0-2	0-5	90-100	80-98	50-88	25-65	30-50	NP-10
	23-49	Gravelly loam, sandy loam, gravelly fine sandy loam	ML, GM, SC-SM, SM	A-2-4, A-1-b, A-4	0-5	3-15	53-99	50-97	30-87	20-55	25-35	NP-10
	49-65	Gravelly fine sandy loam, gravelly sandy loam, gravelly loamy sand	GM, SP-SM, GP-GM, SM	A-1-b, A-2-4	0-5	3-15	53-87	50-80	20-50	10-30	20-35	NP-4

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CaD, CaE, CaF:												
Calvin----------	0-6	Channery silt loam	CL-ML, ML	A-4	0	0-15	70-95	70-90	65-90	55-75	15-30	2-10
	6-29	Channery silt loam, channery loam, very channery silt loam	GM, SM, ML	A-2, A-4, A-6	0	0-15	70-95	55-90	40-90	30-75	22-38	2-11
	29-36	Extremely channery silt loam, very channery silt loam, very channery loam	GM, SC, GC, SM	A-1, A-6, A-2, A-4	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	36-40	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
CcF, CcG:												
Cataska---------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-5	Channery silt loam	GC-GM, GM, CL-ML, ML	A-4	0-2	3-15	55-80	50-75	45-70	40-60	0-30	NP-6
	5-18	Channery silt loam, very channery silt loam	GC-GM, GM, GP-GM	A-1, A-2	0-2	10-25	15-50	10-45	10-40	10-35	0-30	NP-7
	18-34	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	34-40	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
ChE, ChF:												
Chestnut--------	0-8	Loam	CL-ML, SM, ML, SC-SM	A-4, A-2, A-5	0-2	0-5	85-100	80-95	60-95	30-55	20-50	NP-9
	8-33	Gravelly loam, gravelly fine sandy loam, loam	SC-SM, SM	A-2, A-4, A-5	0-5	0-25	75-98	65-97	60-85	34-49	20-45	NP-10
	33-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CjD:												
Chestnut--------	0-8	Loam	ML, SC-SM, CL-ML, SM	A-2, A-4, A-5	0-2	0-5	85-100	80-95	60-95	30-55	20-50	NP-9
	8-33	Gravelly loam, gravelly fine sandy loam, loam	SC-SM, SM	A-2, A-5, A-4	0-5	0-25	75-98	65-97	60-85	34-49	20-45	NP-10
	33-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Ashe------------	0-2	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-8	Sandy loam	ML, SC-SM, CL-ML, SM	A-4	0-2	0-5	90-100	85-100	65-95	40-55	25-35	NP-7
	8-15	Loam, sandy loam, fine sandy loam	SC-SM, SM	A-4	0-2	5-20	85-100	80-95	60-95	35-49	25-35	NP-7
	15-32	Gravelly fine sandy loam, cobbly sandy loam, sandy loam	SM	A-2, A-4	0-2	5-20	75-95	65-95	55-95	30-49	0-25	NP
	32-35	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
CjE, CjF:												
Chestnut--------	0-8	Loam	CL-ML, ML, SM, SC-SM	A-2, A-5, A-4	0-2	0-5	85-100	80-95	60-95	30-55	20-50	NP-9
	8-33	Gravelly loam, gravelly fine sandy loam, loam	SC-SM, SM	A-2, A-5, A-4	0-5	0-25	75-98	65-97	60-85	34-49	20-45	NP-10
	33-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CjE, CjF:												
Ashe	0-2	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-8	Loam	CL-ML, ML, SM, SC-SM	A-4	0-2	0-5	90-100	85-100	65-95	40-55	25-35	NP-7
	8-15	Loam, sandy loam, fine sandy loam	SC-SM, SM	A-4	0-2	5-20	85-100	80-95	60-95	35-49	25-35	NP-7
	15-32	Gravelly fine sandy loam, cobbly sandy loam, sandy loam	SM	A-2, A-4	0-2	5-20	75-95	65-95	55-95	30-49	0-25	NP
	32-35	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
CkG:												
Cleveland	0-10	Sandy loam	SM	A-2, A-4	0-1	2-5	80-95	75-90	60-80	20-50	0-30	NP-3
	10-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Cn:												
Colvard	0-9	Fine sandy loam	SC-SM, SC, SM	A-2, A-4	0	0-5	98-100	85-100	60-85	25-49	15-30	NP-10
	9-60	Fine sandy loam, sandy loam, loam	SC, SC-SM, SM	A-2, A-4	0	0-5	98-100	85-100	60-85	25-49	15-30	NP-10
Co:												
Colvard	0-9	Fine sandy loam	SC, SC-SM, SM	A-2, A-4	0	0-5	98-100	85-100	60-85	25-49	15-30	NP-10
	9-60	Fine sandy loam, sandy loam, loam	SC, SC-SM, SM	A-2, A-4	0	0-5	98-100	85-100	60-85	25-49	15-30	NP-10
Urban land	0-6	Variable	---	---	---	---	---	---	---	---	0-14	---
CrF:												
Craggey	0-13	Loam	SC-SM, SM	A-2, A-4, A-5	0-2	0-5	90-100	85-100	65-95	25-49	25-50	NP-7
	13-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CrF:												
Burton----------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-14	Loam	SM	A-2, A-5, A-4	0-5	0-15	80-100	80-100	60-90	30-49	30-50	NP-7
	14-24	Sandy loam, gravelly sandy loam, loam	SC-SM, SM	A-2, A-4	0-5	5-15	73-100	70-95	57-95	25-49	25-35	NP-7
	24-30	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
CsB:												
Craigsville-----	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-9	Cobbly sandy loam	CL-ML, SM, ML, SC	A-2, A-4	---	25-50	80-95	75-95	50-80	25-60	0-25	NP-10
	9-63	Very gravelly loamy sand, very gravelly sandy loam, extremely cobbly sandy loam	GC-GM, GM, GC, GP-GM	A-1, A-2	---	35-75	35-55	30-50	20-45	10-25	0-25	NP-8
DtE, DtF, DtG:												
Ditney----------	0-3	Sandy loam	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	0-6	90-100	80-95	65-80	30-60	0-30	NP-10
	3-18	Loam, sandy loam, fine sandy loam	CL-ML, SM, ML, SC-SM	A-2-4, A-4	0	0-5	90-100	80-95	65-80	30-60	0-30	NP-10
	18-24	Loam, sandy loam, cobbly loam	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	5-30	65-100	60-100	45-75	25-60	0-30	NP-10
	24-30	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
EdD:												
Edneytown-------	0-2	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-10	Loam	ML, SC-SM, CL-ML, SM	A-2, A-5, A-4	0-1	0-2	95-100	90-100	70-85	40-70	0-25	NP-7
	10-48	Sandy clay loam, clay loam	CL, CL-ML, SC	A-4, A-6	0	0	98-100	95-100	80-97	45-75	25-35	5-15
	48-62	Loamy sand, sandy loam, loam	CL-ML, SM, ML, SC-SM	A-2, A-4	0	0	98-100	95-100	50-90	15-70	0-25	NP-7
EvE, EvF:												
Edneyville------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Loam	ML, MH, SC-SM, SM	A-4, A-2, A-5	0-2	0-5	85-100	80-100	65-95	30-69	25-61	NP-7
	4-25	Fine sandy loam, sandy loam, loam	CL-ML, SM, ML, SC-SM	A-2, A-4, A-5	0-3	0-5	85-100	80-100	65-95	30-68	25-45	NP-10
	25-60	Sandy loam, gravelly sandy loam, loamy sand	SC-SM, SM	A-2, A-5, A-4	0-5	0-10	75-100	65-100	60-88	28-49	25-45	NP-10
Chestnut--------	0-8	Loam	ML, SC-SM, CL-ML, SM	A-2, A-4, A-5	0-2	0-5	85-100	80-95	60-95	30-55	20-50	NP-9
	8-33	Gravelly loam, gravelly fine sandy loam, loam	SC-SM, SM	A-2, A-4, A-5	0-5	0-25	75-98	65-97	60-85	34-49	20-45	NP-10
	33-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GrE, GrF:												
Greenlee--------	0-5	Very cobbly loam	GM, SM	A-1-b, A-4, A-2-4	5-10	20-55	50-100	50-100	30-85	20-45	15-30	NP-7
	5-45	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	GM, SM	A-1-b, A-2-4, A-4	5-35	10-55	50-90	50-80	30-60	20-40	15-30	NP-7
	45-60	Extremely cobbly sandy loam, extremely stony sandy loam	GM, SM	A-1-b, A-2-4	30-70	10-30	50-80	45-70	20-50	15-30	10-30	NP-7
GsD, GsE:												
Groseclose------	0-4	Silty clay loam	CL	A-6, A-7	0	0	85-100	75-100	70-100	65-90	25-45	10-25
	4-60	Clay, silty clay loam, clay loam	CH	A-7	0	0	80-100	75-100	70-100	50-95	35-65	20-45
JeE, JeF:												
Jeffrey---------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-21	Loam	ML, SM	A-4	0	0-2	80-90	75-85	65-80	40-60	0-30	NP-7
	21-28	Cobbly sandy loam, cobbly loam, gravelly fine sandy loam	GM, ML, SM	A-2, A-4	0	5-20	65-90	55-85	45-75	30-60	0-30	NP-7
	28-30	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
KeC, KeD, KeE:												
Keener----------	0-7	Loam	ML, CL-ML, SC-SM, SM	A-4	0	0-5	96-100	86-98	68-98	40-80	0-25	NP-7
	7-45	Loam, cobbly clay loam, cobbly sandy clay loam	CL, CL-ML, ML	A-4	0	15-35	95-100	95-100	70-100	55-85	18-30	3-10
	45-63	Very cobbly loam, very cobbly sandy clay loam	CL-ML, SM, SC, SC-SM	A-4	0	15-50	95-100	95-100	70-100	40-70	18-30	3-10

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
KeF:												
Keener----------	0-7	Loam	ML, SC-SM, CL-ML, SM	A-4	0	0-5	96-100	86-98	68-98	40-80	0-25	NP-7
	7-45	Loam, cobbly clay loam, cobbly sandy clay loam	CL, CL-ML, ML	A-4	0	15-35	95-100	95-100	70-100	55-85	18-30	3-10
	45-63	Very cobbly clay loam, very cobbly sandy clay loam	CL-ML, SC, SM, SC-SM	A-4	0	15-50	95-100	95-100	70-100	40-70	18-30	3-10
LoC, LoD, LoE:												
Lonon-----------	0-8	Loam	ML, SM	A-2-4, A-4	0-1	0-5	90-100	85-100	60-85	25-65	20-30	NP-7
	8-49	Loam, sandy clay loam, clay loam	CL, ML, SM, SC	A-4, A-6	0-1	0-5	90-100	85-100	75-85	35-65	25-40	7-14
	49-61	Cobbly loam, gravelly sandy clay loam, cobbly clay loam	ML, CL, SC, SM	A-2, A-4, A-6	0-10	10-25	85-95	75-90	65-80	30-55	25-40	7-14
MaE, MaF:												
Maymead---------	0-4	Loam	CL-ML, ML	A-4	0	0-3	80-95	75-90	65-80	50-60	0-25	NP-7
	4-63	Gravelly loam, cobbly loam, cobbly sandy loam	GM, CL-ML, ML, SM	A-4	0	10-25	70-90	65-85	55-75	40-60	0-25	NP-7
MoD, MoE, MoF, MoG:												
Montevallo-----	0-2	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-9	Channery silt loam	CL-ML, CL, SC, SC-SM	A-4	0	0-5	60-88	50-75	45-70	40-65	0-30	NP-10
	9-15	Very channery silty clay loam, extremely channery loam	GC, SC-SM, GC-GM, SC	A-2, A-1-b, A-4, A-6	0	0-5	35-70	23-50	15-45	15-40	20-40	2-15
	15-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
NcF, NcG:												
Northcove-------	0-1	Very stony loam	GC-GM, SM, GM, SC-SM	A-1-b, A-2-4, A-4	15-35	25-50	50-90	50-85	30-70	20-45	15-30	NP-7
	1-24	Very cobbly sandy loam, very stony loam, very flaggy loam	GC-GM, GM, SM, SC-SM	A-1-b, A-4, A-2-4	15-40	25-65	50-90	50-85	30-70	20-45	15-30	NP-7
	24-63	Very cobbly sandy loam, very stony loamy sand, extremely stony sand	GC-GM, GM, SM	A-1-b, A-2-4	20-50	25-80	50-85	35-60	20-50	15-30	10-30	NP-7
Pj:												
Pettyjon--------	0-6	Loam	ML	A-4	0	0	95-100	95-100	90-100	70-90	0-30	NP-7
	6-40	Loam, fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	90-100	70-90	0-30	NP-7
	40-60	Loam, fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	95-100	90-100	40-85	0-30	NP-7
PmE:												
Plott-----------	0-16	Loam	ML, MH, SM	A-2, A-4, A-5	0-2	0-5	90-100	80-99	50-85	25-70	30-67	NP-7
	16-43	Loam, fine sandy loam, sandy loam	ML, CL-ML, SC-SM, SM	A-2, A-4, A-5	0-2	0-5	90-100	80-95	50-85	20-70	25-44	NP-10
	43-60	Gravelly fine sandy loam, cobbly sandy loam, loamy sand	GM, SP-SM, SC-SM, SM	A-1-b, A-2-4	0-5	5-15	58-92	56-89	20-72	10-30	25-36	NP-7
PnD, PnE, PnF:												
Porters---------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-10	Gravelly loam	CL, CL-ML, ML	A-4	0-2	0-5	85-100	80-100	70-80	51-65	20-35	NP-10
	10-54	Loam, sandy loam, gravelly loamy sand	ML, SC-SM, CL-ML, SM	A-2, A-4	0-5	5-25	75-99	60-99	50-90	30-70	15-25	NP-7
	54-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Po:												
Potomac---------	0-6	Gravelly loam	GM, GC-GM, SC-SM, SM	A-1, A-2, A-4	---	0-25	50-85	40-75	30-65	15-50	0-20	NP-5
	6-60	Very cobbly loamy sand, very gravelly loamy sand, extremely cobbly sand	GW-GM, SM, GM, SW-SM	A-1, A-2	---	15-50	50-80	35-70	20-50	5-25	0-15	NP-3
ShB:												
Shady-----------	0-9	Loam	CL-ML, ML, SM	A-2, A-4	---	0-5	80-100	75-100	60-95	30-75	0-30	NP-7
	9-28	Clay loam, sandy clay loam, loam	CL-ML, ML, CL, SC	A-4, A-6	---	0-5	80-100	75-100	65-100	36-80	20-35	2-15
	28-39	Gravelly sandy clay loam, gravelly clay loam, loam	ML, CL-ML, SC-SM, SM	A-2, A-4	---	0-15	65-100	60-95	50-90	25-65	0-30	2-10
	39-61	Gravelly sandy loam, gravelly loam, sandy loam	ML, SM, SC-SM	A-2, A-4	---	0-20	65-100	60-95	40-85	20-60	0-30	NP-7
SoE:												
Shelocta--------	0-2	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-12	Silt loam	CL-ML, ML	A-4	0-2	0-5	80-95	75-95	60-95	55-90	0-35	NP-10
	12-65	Silty clay loam, silt loam, channery silty clay loam	CL, SC, CL-ML, GC	A-4, A-6	0-5	0-10	55-95	50-95	45-95	40-90	25-40	4-15
SpF, SpG:												
Spivey----------	0-60	Very cobbly loam	GC-GM, GC, GM, SM	A-2, A-4	---	15-30	45-75	40-70	35-50	25-40	15-28	2-10
St:												
Steadman--------	0-13	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	95-100	80-100	55-90	20-35	2-15
	13-60	Silty clay loam, silt loam, very fine sandy loam	CL-ML, CL, ML	A-4, A-6	0	0	100	95-100	90-100	70-95	25-40	4-18

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
TtC, TtE, TtF:												
Tate------------	0-6	Stony loam	ML, SM	A-4, A-6	10-20	5-15	85-95	80-95	65-95	40-80	15-38	NP-13
	6-45	Cobbly clay loam, sandy clay loam, loam	CL-ML, ML, CL, SC-SM	A-4, A-6	0-1	0-15	94-100	87-100	75-99	40-85	20-40	5-15
	45-60	Gravelly fine sandy loam, cobbly loam, fine sandy loam	GM, GC-GM, SC-SM, SM	A-2-6, A-2-4, A-4	0-10	5-35	40-100	40-90	35-60	30-50	15-35	NP-13
TuE, TuF:												
Tusquitee-------	0-9	Loam	MH, ML	A-4, A-5	0-1	0-10	85-100	80-100	70-95	50-65	25-58	NP-10
	9-38	Loam, sandy loam, fine sandy loam	SC-SM, ML, SM	A-4	0-1	0-15	90-100	75-100	65-95	36-65	20-40	NP-10
	38-60	Gravelly sandy loam, gravelly fine sandy loam, cobbly fine sandy loam	GM, GC-GM, SC-SM, SM	A-2, A-1, A-4	2-15	5-35	45-98	40-85	30-75	12-50	20-35	NP-7
UaE, UaF:												
Unaka-----------	0-8	Loam	CL-ML, SM, ML	A-4	---	2-20	85-95	70-90	65-80	40-65	0-30	NP-7
	8-24	Loam, cobbly loam, clay loam	CL-ML, ML, SM	A-4	---	2-20	85-95	70-90	65-80	40-65	0-30	NP-7
	24-30	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
UcG:												
Unicoi----------	0-2	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-7	Cobbly sandy loam	SC-SM, SM	A-1-b, A-2	0-5	5-25	70-85	60-75	30-50	20-35	0-25	NP-6
	7-18	Very cobbly loam, cobbly sandy loam, very stony loam	GM, GC-GM, SC-SM, SM	A-1-b, A-2	0	20-50	60-75	40-65	30-50	20-35	0-25	NP-6
	18-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
UnB, UnC:												
Unison----------	0-8	Loam	CL, ML, CL-ML	A-4, A-6	0	0-25	75-100	75-100	60-95	50-90	20-38	2-15
	8-62	Clay loam, clay, gravelly silty clay	CH, CL	A-6, A-7	0	0-25	75-100	65-100	60-100	55-95	35-65	15-35
UuC:												
Unison----------	0-8	Loam	CL-ML, CL, ML	A-4, A-6	0	0-25	75-100	75-100	60-95	50-90	20-38	2-15
	8-62	Clay loam, clay, gravelly silty clay	CH, CL	A-6, A-7	0	0-25	75-100	65-100	60-100	55-95	35-65	15-35
Urban land------	0-6	Variable	---	---	---	---	---	---	---	---	0-14	---
W.												
Water												
WaE, WaF:												
Wayah-----------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-23	Loam	ML, SM	A-2, A-4, A-5	0-2	0-5	90-100	80-98	50-88	25-65	30-50	NP-10
	23-49	Gravelly loam, fine sandy loam, gravelly sandy loam	GM, SM, ML, SC-SM	A-2-4, A-1-b, A-4	0-5	3-15	53-99	50-97	30-87	20-55	25-35	NP-10
	49-65	Gravelly fine sandy loam, gravelly sandy loam, gravelly loamy sand	GP-GM, GM, SM, SP-SM	A-1-b, A-2-4	0-5	3-15	53-87	50-80	20-50	10-30	20-35	NP-4
Burton----------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-14	Loam	SM	A-2, A-4, A-5	0-5	0-15	80-100	80-100	60-90	30-49	30-50	NP-7
	14-24	Sandy loam, gravelly sandy loam, loam	SC-SM, SM	A-2, A-4	0-5	5-15	73-100	70-95	57-95	25-49	25-35	NP-7
	24-30	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
WbC, WbD2:												
Waynesboro------	0-5	Loam	CL, CL-ML, SM, ML	A-4	0	0-5	85-100	80-100	70-95	43-70	18-30	2-9
	5-11	Clay loam, loam, sandy clay loam	CL, SC	A-4, A-6, A-7	0	0-5	90-100	85-100	75-95	45-75	30-41	9-17
	11-60	Clay loam, sandy clay, clay	CL, MH, ML	A-4, A-7, A-6	0	0-5	90-100	80-100	70-98	55-75	35-68	9-32
We:												
Wehadkee--------	0-7	Fine sandy loam	SC, SM, SC-SM	A-2, A-4	0	0	100	95-100	60-90	30-50	20-30	NP-10
	7-60	Silty clay loam, loam, sandy clay loam	CL-ML, ML, CL, SC	A-4, A-6, A-7	0	0	100	99-100	85-100	45-98	25-58	6-25

Table 15.—Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
BaF:										
Balsam-------	0-12	4-27	0.50-1.00	2.00-6.00	0.14-0.21	0.0-2.9	8.0-15	.05	.17	5
	12-22	4-27	1.00-1.50	2.00-6.00	0.06-0.10	0.0-2.9	1.0-5.0	.05	.17	
	22-48	4-27	1.00-1.50	2.00-6.00	0.06-0.10	0.0-2.9	0.5-2.0	.05	.17	
	48-60	2-15	1.20-1.60	2.00-6.00	0.04-0.09	0.0-2.9	0.5-1.0	.05	.20	
BbB:										
Bellamy------	0-19	12-25	1.35-1.50	0.60-2.00	0.16-0.22	0.0-2.9	1.0-2.0	.37	.37	5
	19-32	18-32	1.45-1.60	0.20-0.60	0.14-0.18	0.0-2.9	0.5-1.0	.32	.32	
	32-54	18-32	1.40-1.55	0.60-2.00	0.14-0.18	0.0-2.9	0.5-1.0	.32	.32	
	54-72	20-35	1.40-1.55	0.60-2.00	0.14-0.18	0.0-2.9	0.5-1.0	.32	.32	
Bd:										
Bloomingdale-	0-6	18-30	1.10-1.30	0.60-2.00	0.17-0.22	0.0-2.9	1.0-3.0	.37	.37	5
	6-60	35-60	1.30-1.50	0.60-2.00	0.17-0.22	3.0-5.9	0.5-1.0	.37	.37	
BkC, BkD:										
Braddock-----	0-4	10-25	1.20-1.50	0.60-6.00	0.14-0.19	0.0-2.9	1.0-2.0	.32	.32	5
	4-62	35-55	1.20-1.50	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.24	.28	
BrB, BrC:										
Braxton------	0-6	20-35	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.32	.32	5
	6-62	40-60	1.25-1.45	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.20	.20	
BrD2, BrE2, BrF2:										
Braxton-----	0-7	20-35	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.32	.32	5
	7-62	40-60	1.25-1.45	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.20	.20	
BsE:										
Brookshire---	0-1	---	---	---	---	---	---	---	---	3
	1-65	10-18	1.30-1.45	2.00-20.00	0.13-0.18	0.0-2.9	2.0-4.0	.32	.37	
BtD2, BtE2:										
Braxton------	0-7	20-35	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.32	.32	5
	7-62	40-60	1.25-1.45	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.20	.20	
Talbott------	0-3	15-27	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.5-2.0	.37	.37	2
	3-28	40-60	1.30-1.50	0.20-0.60	0.10-0.14	3.0-5.9	0.0-0.5	.24	.24	
	28-40	---	---	0.00-0.06	---	---	---	---	---	
Rock outcrop-	0-60	---	---	0.06-6.00	---	---	---	---	---	-
BuD:										
Braxton------	0-7	20-35	1.35-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.32	.32	5
	7-62	40-60	1.25-1.45	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.20	.20	
Urban land---	0-6	---	---	---	0.00-0.00	---	---	---	---	-
BxD, BxE:										
Burton-------	0-1	---	---	---	---	---	---	---	---	2
	1-14	5-18	1.10-1.30	2.00-6.00	0.16-0.23	0.0-2.9	8.0-15	.24	.24	
	14-24	5-18	1.35-1.60	2.00-6.00	0.10-0.15	0.0-2.9	1.0-5.0	.15	.24	
	24-30	---	---	---	---	---	---	---	---	
Craggey------	0-13	8-27	1.10-1.30	2.00-6.00	0.12-0.17	0.0-2.9	8.0-15	.24	.24	1
	13-20	---	---	---	---	---	---	---	---	

Table 15.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
BzD, BzE, BzF:										
Burton-------	0-1	---	---	---	---	---	---	---	---	2
	1-14	5-18	1.10-1.30	2.00-6.00	0.16-0.23	0.0-2.9	8.0-15	.24	.24	
	14-24	5-18	1.35-1.60	2.00-6.00	0.10-0.15	0.0-2.9	1.0-5.0	.15	.24	
	24-30	---	---	---	---	---	---	---	---	
Wayah--------	0-1	---	---	---	---	---	---	---	---	3
	1-23	5-18	1.00-1.20	2.00-6.00	0.16-0.22	0.0-2.9	8.0-15	.24	.24	
	23-49	5-18	1.20-1.60	2.00-6.00	0.09-0.13	0.0-2.9	0.5-2.0	.15	.24	
	49-65	3-15	1.40-1.65	2.00-6.00	0.05-0.09	0.0-2.9	0.0-0.5	.10	.24	
CaD, CaE, CaF:										
Calvin-------	0-6	10-25	1.20-1.40	2.00-6.00	0.10-0.16	0.0-2.9	1.0-3.0	.20	.24	3
	6-29	10-25	1.40-1.60	2.00-6.00	0.08-0.16	0.0-2.9	0.0-0.5	.20	.24	
	29-36	10-25	1.40-1.60	2.00-6.00	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28	
	36-40	---	---	0.20-6.00	0.00-0.00	---	---	---	---	
CcF, CcG:										
Cataska------	0-1	---	---	---	---	---	---	---	---	2
	1-5	12-22	1.30-1.40	2.00-20.00	0.10-0.14	0.0-2.9	1.0-3.0	.20	.32	
	5-18	12-22	1.30-1.45	1.98-5.95	0.04-0.09	0.0-2.9	0.5-2.0	.15	.32	
	18-34	---	---	0.01-0.20	---	---	0.5-2.0	---	---	
	34-40	---	---	---	---	---	---	---	---	
ChE, ChF:										
Chestnut-----	0-8	5-20	1.35-1.60	2.00-6.00	0.10-0.15	0.0-2.9	1.0-8.0	.24	.24	3
	8-33	5-25	1.35-1.60	2.00-6.00	0.08-0.12	0.0-2.9	0.0-2.0	.15	.24	
	33-60	---	---	---	---	---	---	---	---	
CjD, CjE, CjF:										
Chestnut-----	0-8	5-20	1.35-1.60	2.00-6.00	0.10-0.15	0.0-2.9	1.0-8.0	.24	.24	3
	8-33	5-25	1.35-1.60	2.00-6.00	0.08-0.12	0.0-2.9	0.0-2.0	.15	.24	
	33-60	---	---	---	---	---	---	---	---	
Ashe---------	0-2	---	---	---	---	---	---	---	---	2
	2-8	7-20	1.35-1.60	2.00-6.00	0.13-0.18	0.0-2.9	1.0-5.0	.24	.24	
	8-15	7-20	1.35-1.60	2.00-6.00	0.10-0.14	0.0-2.9	0.0-1.0	.17	.24	
	15-32	5-15	1.45-1.65	2.00-6.00	0.08-0.12	0.0-2.9	0.0-1.0	.17	.24	
	32-35	---	---	---	---	---	---	---	---	
CkG:										
Cleveland----	0-10	6-20	1.20-1.50	2.00-6.00	0.08-0.12	0.0-2.9	0.5-8.0	.24	.24	1
	10-20	---	---	---	---	---	---	---	---	
Cn:										
Colvard------	0-9	8-18	1.45-1.65	2.00-6.00	0.09-0.12	0.0-2.9	1.0-2.0	.24	.24	5
	9-60	8-18	1.45-1.65	2.00-6.00	0.09-0.12	0.0-2.9	0.5-1.0	.24	.24	
Co:										
Colvard------	0-9	8-18	1.45-1.65	2.00-6.00	0.09-0.12	0.0-2.9	1.0-2.0	.24	.24	5
	9-60	8-18	1.45-1.65	2.00-6.00	0.09-0.12	0.0-2.9	0.5-1.0	.24	.24	
Urban land---	0-6	---	---	---	0.00-0.00	---	---	---	---	-
CrF:										
Craggey------	0-13	8-27	1.10-1.30	2.00-6.00	0.12-0.17	0.0-2.9	8.0-15	.24	.24	1
	13-20	---	---	---	---	---	---	---	---	

Table 15.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
CrF:										
Burton-------	0-1	---	---	---	---	---	---	---	---	2
	1-14	5-18	1.10-1.30	2.00-6.00	0.16-0.23	0.0-2.9	8.0-15	.24	.24	
	14-24	5-18	1.35-1.60	2.00-6.00	0.10-0.15	0.0-2.9	1.0-5.0	.15	.24	
	24-30	---	---	---	---	---	---	---	---	
CsB:										
Craigsville--	0-1	---	---	---	---	---	---	---	---	3
	1-9	5-15	1.20-1.40	2.00-20.00	0.07-0.15	0.0-2.9	1.0-3.0	.20	.24	
	9-63	5-10	1.35-1.55	6.00-20.00	0.04-0.09	0.0-2.9	0.0-0.5	.17	.28	
DtE, DtF, DtG:										
Ditney-------	0-3	5-18	1.50-1.65	2.00-6.00	0.10-0.15	0.0-2.9	1.0-3.0	.24	.24	2
	3-18	5-18	1.50-1.65	2.00-6.00	0.10-0.15	0.0-2.9	1.0-3.0	.24	.24	
	18-24	5-18	1.50-1.65	2.00-6.00	0.05-0.13	0.0-2.9	1.0-3.0	.17	.24	
	24-30	---	---	0.00-0.01	---	---	---	---	---	
EdD:										
Edneytown----	0-2	---	---	---	---	---	---	---	---	5
	2-10	5-15	1.40-1.60	2.00-6.00	0.11-0.17	0.0-2.9	1.0-3.0	.20	.20	
	10-48	20-35	1.30-1.40	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.24	.24	
	48-62	4-15	1.30-1.50	2.00-6.00	0.06-0.12	0.0-2.9	0.0-0.5	.17	.17	
EvE, EvF:										
Edneyville---	0-1	---	---	---	---	---	---	---	---	5
	1-4	5-18	1.40-1.60	2.00-6.00	0.11-0.17	0.0-2.9	1.0-8.0	.24	.24	
	4-25	7-20	1.40-1.60	2.00-6.00	0.10-0.16	0.0-2.9	0.5-2.0	.24	.24	
	25-60	5-20	1.40-1.60	2.00-6.00	0.08-0.14	0.0-2.9	0.0-0.5	.20	.24	
Chestnut-----	0-8	5-20	1.35-1.60	2.00-6.00	0.10-0.15	0.0-2.9	1.0-8.0	.24	.24	3
	8-33	5-25	1.35-1.60	2.00-6.00	0.08-0.12	0.0-2.9	0.0-2.0	.15	.24	
	33-60	---	---	---	---	---	---	---	---	
GrE, GrF:										
Greenlee-----	0-5	5-25	1.30-1.50	2.00-6.00	0.06-0.11	0.0-2.9	2.0-5.0	.10	.20	5
	5-45	5-25	1.40-1.60	2.00-6.00	0.05-0.10	0.0-2.9	0.5-1.0	.10	.20	
	45-60	1-18	1.40-1.60	2.00-6.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.17	
GsD, GsE:										
Groseclos----	0-4	27-40	1.35-1.55	0.60-2.00	0.10-0.16	3.0-5.9	1.0-2.0	.32	.32	5
	4-60	35-60	1.35-1.60	0.06-0.20	0.10-0.17	6.0-8.9	0.0-0.5	.24	.24	
JeE, JeF:										
Jeffrey------	0-1	---	---	---	---	---	---	---	---	2
	1-21	10-18	1.45-1.55	0.60-6.00	0.10-0.15	0.0-2.9	3.0-8.0	.17	.24	
	21-28	8-15	1.45-1.55	0.60-6.00	0.07-0.13	0.0-2.9	1.0-2.0	.17	.24	
	28-30	---	---	---	---	---	---	---	---	
KeC, KeD, KeE, KeF:										
Keener------	0-7	5-25	1.35-1.60	2.00-6.00	0.14-0.18	0.0-2.9	1.0-2.0	.24	.24	5
	7-45	10-35	1.30-1.45	0.60-2.00	0.10-0.15	0.0-2.9	0.5-1.0	.20	.24	
	45-63	10-35	1.30-1.45	2.00-6.00	0.08-0.12	0.0-2.9	0.5-1.0	.20	.24	
LoC, LoD, LoE:										
Lonon--------	0-8	7-20	1.35-1.60	2.00-6.00	0.14-0.20	0.0-2.9	0.5-2.0	.24	.24	5
	8-49	18-35	1.30-1.50	0.60-2.00	0.12-0.20	0.0-2.9	0.0-0.5	.24	.24	
	49-61	18-35	1.30-1.50	0.60-2.00	0.09-0.15	0.0-2.9	0.0-0.5	.15	.24	

Table 15.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
MaE, MaF:										
Maymead------	0-4	8-18	1.40-1.55	2.00-6.00	0.15-0.18	0.0-2.9	1.0-3.0	.24	.24	5
	4-63	8-18	1.40-1.55	2.00-6.00	0.13-0.18	0.0-2.9	0.5-1.0	.17	.24	
MoD, MoE, MoF, MoG:										
Montevallo--	0-2	---	---	---	---	---	---	---	---	2
	2-9	7-27	1.25-1.45	0.60-2.00	0.09-0.18	0.0-2.9	0.5-2.0	.28	.32	
	9-15	15-35	1.25-1.50	0.60-2.00	0.02-0.12	0.0-2.9	0.0-0.5	.32	.32	
	15-60	---	---	0.00-0.20	---	---	---	---	---	
NcF, NcG:										
Northcove----	0-1	5-18	1.30-1.50	2.00-6.00	0.06-0.11	0.0-2.9	0.5-2.0	.10	.28	5
	1-24	5-18	1.40-1.60	2.00-6.00	0.06-0.11	0.0-2.9	0.0-1.0	.10	.28	
	24-63	1-18	1.40-1.60	2.00-6.00	0.03-0.05	0.0-2.9	0.0-0.5	.10	.17	
Pj:										
Pettyjon-----	0-6	12-27	1.20-1.50	0.60-2.00	0.17-0.22	0.0-2.9	1.0-3.0	.37	.37	5
	6-40	18-27	1.20-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.37	.37	
	40-60	12-27	1.30-1.60	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.32	.32	
PmE:										
Plott--------	0-16	4-18	1.00-1.20	2.00-6.00	0.18-0.28	0.0-2.9	5.0-15	.24	.24	5
	16-43	5-20	1.20-1.40	2.00-6.00	0.14-0.24	0.0-2.9	0.0-1.0	.24	.24	
	43-60	2-18	1.20-1.60	2.00-6.00	0.05-0.20	0.0-2.9	0.0-0.5	.15	.24	
PnD, PnE, PnF:										
Porters------	0-1	---	---	---	---	---	---	---	---	3
	1-10	10-25	1.40-1.60	2.00-6.00	0.16-0.20	0.0-2.9	3.0-8.0	.28	.28	
	10-54	7-20	1.40-1.60	2.00-6.00	0.10-0.20	0.0-2.9	0.5-1.0	.24	.24	
	54-60	---	---	---	---	---	---	---	---	
Po:										
Potomac------	0-6	5-12	1.20-1.40	2.00-6.00	0.08-0.12	0.0-2.9	0.0-2.0	.20	.24	3
	6-60	4-10	1.30-1.60	6.00-20.00	0.03-0.06	0.0-2.9	---	.17	.24	
ShB:										
Shady--------	0-9	10-25	1.35-1.50	0.60-6.00	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	5
	9-28	20-35	1.35-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.5	.28	.28	
	28-39	15-25	1.40-1.60	0.60-2.00	0.10-0.16	0.0-2.9	0.0-0.5	.20	.28	
	39-61	8-20	1.40-1.60	0.60-6.00	0.09-0.15	0.0-2.9	0.0-0.5	.20	.28	
SoE:										
Shelocta-----	0-2	---	---	---	---	---	---	---	---	3
	2-12	10-25	1.15-1.30	0.60-2.00	0.16-0.22	0.0-2.9	0.5-5.0	.32	.32	
	12-65	18-34	1.30-1.55	0.60-2.00	0.10-0.20	0.0-2.9	0.5-2.0	.28	.32	
SpF, SpG:										
Spivey-------	0-60	10-20	1.35-1.45	0.60-6.00	0.06-0.11	0.0-2.9	---	.17	.28	5
St:										
Steadman-----	0-13	15-27	1.20-1.40	0.60-2.00	0.20-0.26	0.0-2.9	2.0-4.0	.32	.32	5
	13-60	18-35	1.20-1.40	0.20-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.37	.37	
TtC, TtE, TtF:										
Tate---------	0-6	5-25	1.35-1.60	2.00-6.00	0.12-0.15	0.0-2.9	1.0-3.0	.17	.24	5
	6-45	18-35	1.30-1.45	0.60-2.00	0.17-0.19	0.0-2.9	0.0-1.0	.28	.28	
	45-60	5-25	1.35-1.60	2.00-6.00	0.12-0.15	0.0-2.9	0.0-0.5	.17	.24	

Table 15.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
TuE, TuF:										
Tusquitee----	0-9	7-20	1.20-1.40	2.00-6.00	0.16-0.24	0.0-2.9	3.0-8.0	.28	.28	5
	9-38	7-20	1.30-1.60	2.00-6.00	0.15-0.21	0.0-2.9	0.5-1.0	.24	.24	
	38-60	5-20	1.30-1.60	2.00-6.00	0.08-0.14	0.0-2.9	0.0-0.5	.17	.24	
UaE, UaF:										
Unaka--------	0-8	10-22	1.35-1.50	0.60-2.00	0.14-0.18	0.0-2.9	---	.17	.20	2
	8-24	18-30	1.35-1.50	0.60-2.00	0.14-0.18	0.0-2.9	---	.17	.20	
	24-30	---	---	0.00-0.01	---	---	---	---	---	
UcG:										
Unicoi-------	0-2	---	---	---	---	---	---	---	---	1
	2-7	5-20	1.45-1.55	2.00-6.00	0.08-0.12	0.0-2.9	0.5-2.0	.20	.28	
	7-18	5-20	1.45-1.60	2.00-6.00	0.04-0.09	0.0-2.9	0.5-2.0	.15	.24	
	18-20	---	---	0.00-0.01	---	---	---	---	---	
Rock outcrop-	0-60	---	---	0.06-6.00	---	---	---	---	---	-
UnB, UnC:										
Unison-------	0-8	10-25	1.35-1.65	0.60-6.00	0.14-0.20	0.0-2.9	1.0-3.0	.32	.32	5
	8-62	30-70	1.30-1.60	0.60-2.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.28	
UuC:										
Unison-------	0-8	10-25	1.35-1.65	0.60-6.00	0.14-0.20	0.0-2.9	1.0-3.0	.32	.32	5
	8-62	30-70	1.30-1.60	0.60-2.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.28	
Urban land---	0-6	---	---	---	0.00-0.00	---	---	---	---	-
W.										
Water										
WaE, WaF:										
Wayah--------	0-1	---	---	---	---	---	---	---	---	3
	1-23	5-18	1.00-1.20	2.00-6.00	0.16-0.22	0.0-2.9	8.0-15	.24	.24	
	23-49	5-18	1.20-1.60	2.00-6.00	0.09-0.13	0.0-2.9	0.5-2.0	.15	.24	
	49-65	3-15	1.40-1.65	2.00-6.00	0.05-0.09	0.0-2.9	0.0-0.5	.10	.24	
Burton-------	0-1	---	---	---	---	---	---	---	---	2
	1-14	5-18	1.10-1.30	2.00-6.00	0.16-0.23	0.0-2.9	8.0-15	.24	.24	
	14-24	5-18	1.35-1.60	2.00-6.00	0.10-0.15	0.0-2.9	1.0-5.0	.15	.24	
	24-30	---	---	---	---	---	---	---	---	
WbC:										
Waynesboro---	0-5	10-30	1.40-1.55	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.28	.28	5
	5-11	23-35	1.40-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.5	.28	.28	
	11-60	35-50	1.40-1.55	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.28	.28	
WbD2:										
Waynesboro---	0-5	10-30	1.40-1.55	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.28	.28	5
	5-11	23-35	1.40-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.5-2.0	.28	.28	
	11-60	35-50	1.40-1.55	0.60-2.00	0.13-0.18	0.0-2.9	0.5-2.0	.28	.28	
We:										
Wehadkee-----	0-7	5-20	1.35-1.60	2.00-6.00	0.10-0.15	0.0-2.9	2.0-5.0	.24	.24	5
	7-60	18-35	1.30-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.0-2.0	.32	.32	

Table 16.—Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
BaF:				
Balsam	0-12	---	3.0-15	3.5-6.0
	12-22	---	1.0-5.0	3.5-6.0
	22-48	---	1.0-5.0	3.5-6.0
	48-60	---	1.0-5.0	3.5-6.0
BbB:				
Bellamy	0-19	---	---	4.5-6.0
	19-32	---	---	4.5-6.0
	32-54	---	---	4.5-6.0
	54-72	---	---	4.5-6.0
Bd:				
Bloomingdale	0-6	---	---	5.6-8.4
	6-60	---	---	5.6-8.4
BkC, BkD:				
Braddock	0-4	---	8.0-16	3.6-5.5
	4-62	---	8.0-16	3.6-5.5
BrB, BrC:				
Braxton	0-6	---	---	5.1-6.0
	6-62	---	---	5.1-6.0
BrD2, BrE2, BrF2:				
Braxton	0-7	---	---	5.1-6.0
	7-62	---	---	5.1-6.0
BsE:				
Brookshire	0-1	---	---	---
	1-65	---	---	5.1-5.5
BtD2, BtE2:				
Braxton	0-7	---	---	5.1-6.0
	7-62	---	---	5.1-6.0
Talbott	0-3	---	---	5.1-6.5
	3-28	---	---	5.1-6.5
	28-40	---	---	---
Rock outcrop.				
BuD:				
Braxton	0-7	---	---	5.1-6.0
	7-62	---	---	5.1-6.0
Urban land.				
BxD, BxE:				
Burton	0-1	---	---	---
	1-14	---	3.0-17	3.5-6.0
	14-24	---	1.0-3.0	3.5-6.0
	24-30	---	---	---
Craggey	0-13	---	2.0-10	3.5-6.0
	13-20	---	---	---

Table 16.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
BzD, BzE, BzF:				
Burton	0-1	---	---	---
	1-14	---	3.0-17	3.5-6.0
	14-24	---	1.0-3.0	3.5-6.0
	24-30	---	---	---
Wayah	0-1	---	---	---
	1-23	---	3.0-20	3.5-5.5
	23-49	---	1.0-5.0	4.5-6.0
	49-65	---	1.0-5.0	4.5-6.0
CaD, CaE, CaF:				
Calvin	0-6	12-22	---	5.1-6.5
	6-29	7.0-15	---	5.1-6.5
	29-36	7.0-15	---	5.1-6.5
	36-40	---	---	---
CcF, CcG:				
Cataska	0-1	---	---	---
	1-5	---	---	3.6-5.5
	5-18	---	---	3.6-5.5
	18-34	---	---	---
	34-40	---	---	---
ChE, ChF:				
Chestnut	0-8	---	2.0-8.0	3.5-6.0
	8-33	---	1.0-5.0	3.5-6.0
	33-60	---	---	---
CjD, CjE, CjF:				
Chestnut	0-8	---	2.0-8.0	3.5-6.0
	8-33	---	1.0-5.0	3.5-6.0
	33-60	---	---	---
Ashe	0-2	---	---	---
	2-8	---	2.0-8.0	3.5-6.0
	8-15	---	1.0-5.0	3.5-6.0
	15-32	---	1.0-5.0	3.5-6.0
	32-35	---	---	---
CkG:				
Cleveland	0-10	---	2.0-8.0	4.5-6.0
	10-20	---	---	---
Cn:				
Colvard	0-9	5.0-15	---	5.1-7.8
	9-60	4.0-15	---	5.1-7.8
Co:				
Colvard	0-9	5.0-15	---	5.1-7.8
	9-60	4.0-15	---	5.1-7.8
Urban land.				

Table 16.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
CrF:				
Craggey	0-13	---	2.0-10	3.5-6.0
	13-20	---	---	---
Burton	0-1	---	---	---
	1-14	---	3.0-17	3.5-6.0
	14-24	---	1.0-3.0	3.5-6.0
	24-30	---	---	---
CsB:				
Craigsville	0-1	---	---	---
	1-9	---	---	4.5-5.5
	9-63	---	---	4.5-5.5
DtE, DtF, DtG:				
Ditney	0-3	---	---	3.6-5.5
	3-18	---	---	3.6-5.5
	18-24	---	---	3.6-5.5
	24-30	---	---	---
EdD:				
Edneytown	0-2	---	---	---
	2-10	---	4.0-12	4.5-6.0
	10-48	---	4.0-10	4.5-5.5
	48-62	---	---	4.5-5.5
EvE, EvF:				
Edneyville	0-1	---	---	---
	1-4	---	2.0-12	4.5-6.0
	4-25	---	2.0-6.0	4.5-6.0
	25-60	---	1.0-4.0	4.5-6.0
Chestnut	0-8	---	2.0-8.0	3.5-6.0
	8-33	---	1.0-5.0	3.5-6.0
	33-60	---	---	---
GrE, GrF:				
Greenlee	0-5	---	3.0-10	3.5-6.0
	5-45	---	1.0-6.0	3.5-6.0
	45-60	---	0.0-4.0	3.5-6.0
GsD, GsE:				
Groseclose	0-4	---	0.0-35	3.6-5.5
	4-60	---	0.0-35	3.6-5.5
JeE, JeF:				
Jeffrey	0-1	---	---	---
	1-21	---	---	4.5-5.5
	21-28	---	---	4.5-5.5
	28-30	---	---	---
KeC, KeD, KeE, KeF:				
Keener	0-7	---	---	3.6-6.0
	7-45	---	---	3.6-6.0
	45-63	---	---	3.6-6.0
LoC, LoD, LoE:				
Lonon	0-8	---	2.0-6.0	3.5-6.0
	8-49	---	3.0-8.0	3.5-6.0
	49-61	---	3.0-8.0	3.5-6.0

Table 16.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
MaE, MaF:				
Maymead	0-4	---	---	4.5-5.5
	4-63	---	---	4.5-5.5
MoD, MoE, MoF, MoG:				
Montevallo	0-2	---	---	---
	2-9	---	---	4.5-6.0
	9-15	---	---	4.5-6.0
	15-60	---	---	---
NcF, NcG:				
Northcove	0-1	---	1.0-6.0	3.5-6.0
	1-24	---	1.0-5.0	3.5-6.0
	24-63	---	0.0-4.0	3.5-6.0
Pj:				
Pettyjon	0-6	---	---	6.1-7.8
	6-40	---	---	6.1-7.8
	40-60	---	---	6.1-7.8
PmE:				
Plott	0-16	---	3.0-15	3.5-6.0
	16-43	---	1.0-5.0	4.5-6.0
	43-60	---	1.0-3.0	4.5-6.0
PnD, PnE, PnF:				
Porters	0-1	---	---	---
	1-10	5.0-13	---	4.5-6.5
	10-54	2.0-4.0	---	4.5-6.5
	54-60	---	---	---
Po:				
Potomac	0-6	---	---	5.1-7.8
	6-60	---	---	5.1-7.8
ShB:				
Shady	0-9	---	---	4.5-6.5
	9-28	---	---	4.5-6.0
	28-39	---	---	4.5-6.0
	39-61	---	---	4.5-6.0
SoE:				
Shelocta	0-2	---	---	---
	2-12	---	5.0-16	4.5-5.5
	12-65	---	3.0-15	4.5-5.5
SpF, SpG:				
Spivey	0-60	---	---	4.5-6.0
St:				
Steadman	0-13	15-30	---	5.1-7.8
	13-60	15-25	---	5.1-7.8
TtC, TtE, TtF:				
Tate	0-6	2.0-6.0	---	4.5-6.5
	6-45	3.0-7.0	---	4.5-6.5
	45-60	1.0-3.0	---	4.5-6.5

Table 16.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
TuE, TuF:				
Tusquitee	0-9	4.0-12	---	4.5-6.5
	9-38	---	2.0-5.0	4.5-6.0
	38-60	---	1.0-5.0	4.5-6.0
UaE, UaF:				
Unaka	0-8	---	---	4.5-5.5
	8-24	---	---	4.5-5.5
	24-30	---	---	---
UcG:				
Unicoi	0-2	---	---	---
	2-7	---	---	3.6-5.5
	7-18	---	---	3.6-5.5
	18-20	---	---	---
Rock outcrop.				
UnB, UnC:				
Unison	0-8	---	---	4.5-6.0
	8-62	---	---	4.5-6.0
UuC:				
Unison	0-8	---	---	4.5-6.0
	8-62	---	---	4.5-6.0
Urban land.				
W.				
Water				
WaE, WaF:				
Wayah	0-1	---	---	---
	1-23	---	3.0-20	3.5-5.5
	23-49	---	1.0-5.0	4.5-6.0
	49-65	---	1.0-5.0	4.5-6.0
Burton	0-1	---	---	---
	1-14	---	3.0-17	3.5-6.0
	14-24	---	1.0-3.0	3.5-6.0
	24-30	---	---	---
WbC, WbD2:				
Waynesboro	0-5	---	5.0-12	4.5-5.5
	5-11	---	5.0-10	4.5-5.5
	11-60	---	8.0-15	4.5-5.5
We:				
Wehadkee	0-7	5.0-20	---	4.5-6.5
	7-60	5.0-25	---	4.5-6.5

Table 17.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
BaF:					
Balsam	---	---	Moderate	High	High
BbB:					
Bellamy	---	---	None	Moderate	Moderate
Bd:					
Bloomingdale	---	---	None	High	Low
BkC, BkD:					
Braddock	---	---	Moderate	High	Moderate
BrB, BrC, BrD2, BrE2, BrF2:					
Braxton	---	---	None	High	Moderate
BsE:					
Brookshire	Bedrock (lithic)	40-70	None	Low	Moderate
BtD2, BtE2:					
Braxton	---	---	None	High	Moderate
Talbott	Bedrock (lithic)	20-40	None	High	Moderate
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
BuD:					
Braxton	---	---	None	High	Moderate
Urban land.					
BxD, BxE:					
Burton	Bedrock (lithic)	20-40	Moderate	High	High
Craggey	Bedrock (lithic)	10-20	Moderate	High	High
BzD, BzE, BzF:					
Burton	Bedrock (lithic)	20-40	Moderate	High	High
Wayah	---	---	Moderate	Low	High
CaD, CaE, CaF:					
Calvin	Bedrock (paralithic)	20-40	Moderate	Low	Moderate
CcF, CcG:					
Cataska	Bedrock (paralithic)	10-20	Moderate	Low	Moderate
ChE, ChF:					
Chestnut	Bedrock (paralithic)	20-40	Moderate	Low	High

Table 17.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
CjD, CjE, CjF:					
Chestnut	Bedrock (paralithic)	20-40	Moderate	Low	High
Ashe	Bedrock (lithic)	20-40	Moderate	Low	High
CkG:					
Cleveland	Bedrock (lithic)	10-20	Moderate	Low	High
Cn:					
Colvard	---	---	Moderate	Low	Moderate
Co:					
Colvard	---	---	Moderate	Low	Moderate
Urban land.					
CrF:					
Craggey	Bedrock (lithic)	10-20	Moderate	High	High
Burton	Bedrock (lithic)	20-40	Moderate	High	High
CsB:					
Craigsville	---	---	Moderate	Moderate	Moderate
DtE, DtF, DtG:					
Ditney	Bedrock (lithic)	20-40	Moderate	Low	Moderate
EdD:					
Edneytown	---	---	Moderate	Moderate	Moderate
EvE, EvF:					
Edneyville	---	---	Moderate	Low	High
Chestnut	Bedrock (paralithic)	20-40	Moderate	Low	High
GrE, GrF:					
Greenlee	---	---	Low	Low	High
GsD, GsE:					
Groseclose	---	---	Moderate	High	High
JeE, JeF:					
Jeffrey	Bedrock (lithic)	20-40	None	Low	Moderate
KeC, KeD, KeE, KeF:					
Keener	---	---	None	Moderate	Moderate
LoC, LoD, LoE:					
Lonon	---	---	Moderate	Low	High
MaE, MaF:					
Maymead	---	---	Moderate	Low	Moderate
MoD, MoE, MoF, MoG:					
Montevallo	Bedrock (paralithic)	10-20	None	Moderate	Moderate

Table 17.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
NcF, NcG:					
Northcove	---	---	Low	Low	High
Pj:					
Pettyjon	---	---	None	Moderate	Low
PmE:					
Plott	---	---	Moderate	Low	High
PnD, PnE, PnF:					
Porters	Bedrock (lithic)	40-60	Moderate	Low	High
Po:					
Potomac	---	---	Low	Low	Moderate
ShB:					
Shady	---	---	None	Low	Moderate
SoE:					
Shelocta	Bedrock (lithic)	48-48	None	Low	High
SpF, SpG:					
Spivey	---	---	None	Low	Moderate
St:					
Steadman	---	---	High	Moderate	Low
TtC, TtE, TtF:					
Tate	---	---	Moderate	Moderate	Moderate
TuE, TuF:					
Tusquitee	---	---	Moderate	Moderate	Moderate
UaE, UaF:					
Unaka	Bedrock (lithic)	20-40	None	Low	Moderate
UcG:					
Unicoi	Bedrock (lithic)	7-20	Moderate	Low	Moderate
Rock outcrop	Bedrock (lithic)	0-0	None	---	---
UnB, UnC:					
Unison	---	---	Moderate	High	Moderate
UuC:					
Unison	---	---	Moderate	High	Moderate
Urban land.					
W.					
Water					
WaE, WaF:					
Wayah	---	---	Moderate	Low	High
Burton	Bedrock (lithic)	20-40	Moderate	High	High

Table 17.—Soil Features—Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
WbC, WbD2:					
Waynesboro	---	---	None	High	High
We:					
Wehadkee	---	---	None	High	Moderate

Table 18.—Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
			Ft	Ft		
BaF:						
Balsam	B					
		Jan-Dec	---	---	---	None
BbB:						
Bellamy	C					
		January	1.5-3.0	---	---	None
		February	1.5-3.0	---	---	None
		March	1.5-3.0	---	---	None
Bd:						
Bloomingdale	D					
		January	0.0-1.0	>6.0	Brief	Occasional
		February	0.0-1.0	>6.0	Brief	Occasional
		March	0.0-1.0	>6.0	Brief	Occasional
		April	0.0-1.0	>6.0	Brief	Occasional
		May	0.0-1.0	>6.0	Brief	Occasional
		November	0.0-1.0	>6.0	Brief	Occasional
		December	0.0-1.0	>6.0	Brief	Occasional
BkC, BkD:						
Braddock	B					
		Jan-Dec	---	---	---	None
BrB, BrC, BrD2, BrE2, BrF2:						
Braxton	C					
		Jan-Dec	---	---	---	None
BsE:						
Brookshire	C					
		Jan-Dec	---	---	---	None
BtD2, BtE2:						
Braxton	C					
		Jan-Dec	---	---	---	None
Talbott	C					
		Jan-Dec	---	---	---	None
Rock outcrop	D					
		Jan-Dec	---	---	---	None
BuD:						
Braxton	C					
		Jan-Dec	---	---	---	None
Urban land.						

Table 18.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
			Ft	Ft		
BxD, BxE:						
Burton	B					
		Jan-Dec	---	---	---	None
Craggey	D					
		Jan-Dec	---	---	---	None
BzD, BzE, BzF:						
Burton	B					
		Jan-Dec	---	---	---	None
Wayah	B					
		Jan-Dec	---	---	---	None
CaD, CaE, CaF:						
Calvin	C					
		Jan-Dec	---	---	---	None
CcF, CcG:						
Cataska	D					
		Jan-Dec	---	---	---	None
ChE, ChF:						
Chestnut	B					
		Jan-Dec	---	---	---	None
CjD, CjE, CjF:						
Chestnut	B					
		Jan-Dec	---	---	---	None
Ashe	B					
		Jan-Dec	---	---	---	None
CkG:						
Cleveland	C					
		Jan-Dec	---	---	---	None
Cn:						
Colvard	B					
		January	4.0-6.0	>6.0	Very brief	Occasional
		February	4.0-6.0	>6.0	Very brief	Occasional
		March	4.0-6.0	>6.0	Very brief	Occasional
		April	4.0-6.0	>6.0	Very brief	Occasional
		May	---	---	Very brief	Occasional
		November	---	---	Very brief	Occasional
		December	4.0-6.0	>6.0	Very brief	Occasional
Co:						
Colvard	B					
		January	4.0-6.0	>6.0	---	None
		February	4.0-6.0	>6.0	---	None
		March	4.0-6.0	>6.0	---	None
		April	4.0-6.0	>6.0	---	None
		December	4.0-6.0	>6.0	---	None
Urban land.						

Table 18.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
			Ft	Ft		
CrF:						
Craggey	D					
		Jan-Dec	---	---	---	None
Burton	B					
		Jan-Dec	---	---	---	None
CsB:						
Craigsville	B					
		January	---	---	Very brief	Frequent
		February	---	---	Very brief	Frequent
		March	---	---	Very brief	Frequent
		April	---	---	Very brief	Frequent
		May	---	---	Very brief	Frequent
		November	---	---	Very brief	Frequent
		December	---	---	Very brief	Frequent
DtE, DtF, DtG:						
Ditney	C					
		Jan-Dec	---	---	---	None
EdD:						
Edneytown	B					
		Jan-Dec	---	---	---	None
EvE, EvF:						
Edneyville	B					
		Jan-Dec	---	---	---	None
Chestnut	B					
		Jan-Dec	---	---	---	None
GrE, GrF:						
Greenlee	B					
		Jan-Dec	---	---	---	None
GsD, GsE:						
Groseclose	C					
		Jan-Dec	---	---	---	None
JeE, JeF:						
Jeffrey	B					
		Jan-Dec	---	---	---	None
KeC, KeD, KeE, KeF:						
Keener	B					
		Jan-Dec	---	---	---	None
LoC, LoD, LoE:						
Lonon	B					
		Jan-Dec	---	---	---	None
MaE, MaF:						
Maymead	B					
		Jan-Dec	---	---	---	None
MoD, MoE, MoF, MoG:						
Montevallo	D					
		Jan-Dec	---	---	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
NcF, NcG:						
Northcove	B					
		Jan-Dec	---	---	---	None
Pj:						
Pettyjon	B					
		January	---	---	Very brief	Rare
		February	---	---	Very brief	Rare
		March	---	---	Very brief	Rare
		December	---	---	Very brief	Rare
PmE:						
Plott	B					
		Jan-Dec	---	---	---	None
PnD, PnE, PnF:						
Porters	B					
		Jan-Dec	---	---	---	None
Po:						
Potomac	A					
		January	---	---	---	Rare
		February	---	---	---	Rare
		March	---	---	---	Rare
		April	---	---	---	Rare
		May	---	---	---	Rare
		November	---	---	---	Rare
		December	---	---	---	Rare
		Jan-Dec	---	---	---	None
ShB:						
Shady	B					
		February	---	---	---	Rare
		March	---	---	---	Rare
		April	---	---	---	Rare
		Jan-Dec	---	---	---	None
SoE:						
Shelocta	B					
		Jan-Dec	---	---	---	None
SpF, SpG:						
Spivey	B					
		Jan-Dec	---	---	---	None
St:						
Steadman	C					
		January	1.5-3.0	>6.0	Brief	Occasional
		February	1.5-3.0	>6.0	Brief	Occasional
		March	1.5-3.0	>6.0	Brief	Occasional
		April	1.5-3.0	>6.0	Brief	Occasional
		December	1.5-3.0	>6.0	Brief	Occasional
TtC, TtE, TtF:						
Tate	B					
		Jan-Dec	---	---	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
			Ft	Ft		
TuE, TuF:						
Tusquitee	B					
		Jan-Dec	---	---	---	None
UaE, UaF:						
Unaka	B					
		Jan-Dec	---	---	---	None
UcG:						
Unicoi	C					
		Jan-Dec	---	---	---	None
Rock outcrop	D					
		Jan-Dec	---	---	---	None
UnB, UnC:						
Unison	B					
		Jan-Dec	---	---	---	None
UuC:						
Unison	B					
		Jan-Dec	---	---	---	None
Urban land.						
W.						
Water						
WaE, WaF:						
Wayah	B					
		Jan-Dec	---	---	---	None
Burton	B					
		Jan-Dec	---	---	---	None
WbC, WbD2:						
Waynesboro	B					
		Jan-Dec	---	---	---	None
We:						
Wehadkee	D					
		January	0.0-1.0	>6.0	Brief	Occasional
		February	0.0-1.0	>6.0	Brief	Occasional
		March	0.0-1.0	>6.0	Brief	Occasional
		April	0.0-1.0	>6.0	Brief	Occasional
		May	0.0-1.0	>6.0	Brief	Occasional
		June	---	---	Brief	Occasional
		November	0.0-1.0	>6.0	Brief	Occasional
		December	0.0-1.0	>6.0	Brief	Occasional

Table 19.—Classification of the Soils

Soil name	Family or higher taxonomic class
Ashe	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Balsam	Loamy-skeletal, mixed, frigid Typic Haplumbrepts
Bellamy	Fine-loamy, siliceous, thermic Aquic Hapludults
Bloomingdale	Fine, mixed, nonacid, thermic Typic Endoaquepts
Braddock	Clayey, mixed, mesic Typic Hapludults
Braxton	Fine, mixed, thermic Typic Paleudalfs
Brookshire	Coarse-loamy, mixed, mesic Umbric Dystrochrepts
Burton	Coarse-loamy, mixed, frigid Typic Haplumbrepts
Calvin	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Cataska	Loamy-skeletal, mixed, mesic, shallow Typic Dystrochrepts
Chestnut	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Cleveland	Loamy, mixed, mesic Lithic Dystrochrepts
Colvard	Coarse-loamy, mixed, nonacid, mesic Typic Udifluvents
Craggey	Loamy, mixed, frigid Lithic Haplumbrepts
Craigsville	Loamy-skeletal, mixed, mesic Fluventic Dystrochrepts
Ditney	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Edneytown	Fine-loamy, mixed, mesic Typic Hapludults
Edneyville	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Greenlee	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Groseclose	Clayey, mixed, mesic Typic Hapludults
Jeffrey	Coarse-loamy, mixed, mesic Umbric Dystrochrepts
Keener	Fine-loamy, siliceous, mesic Typic Hapludults
Lonon	Fine-loamy, mixed, mesic Typic Hapludults
Maymead	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Montevallo	Loamy-skeletal, mixed, thermic, shallow Typic Dystrochrepts
Northcove	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Pettyjon	Fine-loamy, mixed, thermic Dystric Fluventic Eutrochrepts
Plott	Coarse-loamy, mixed, mesic Typic Haplumbrepts
Porters	Coarse-loamy, mixed, mesic Umbric Dystrochrepts
Potomac	Sandy-skeletal, mixed, mesic Typic Udifluvents
Shady	Fine-loamy, mixed, thermic Typic Hapludults
Shelocta	Fine-loamy, mixed, mesic Typic Hapludults
Spivey	Loamy-skeletal, mixed, mesic Typic Haplumbrepts
Steadman	Fine-silty, mixed, thermic Fluvaquentic Eutrochrepts
Talbott	Fine, mixed, thermic Typic Hapludalfs
Tate	Fine-loamy, mixed, mesic Typic Hapludults
Tusquitee	Coarse-loamy, mixed, mesic Umbric Dystrochrepts
Unaka	Coarse-loamy, mixed, mesic Umbric Dystrochrepts
Unicoi	Loamy-skeletal, mixed, mesic Lithic Dystrochrepts
Unison	Clayey, mixed, mesic Typic Hapludults
Wayah	Coarse-loamy, mixed, frigid Typic Haplumbrepts
Waynesboro	Clayey, kaolinitic, thermic Typic Paleudults
Wehadkee	Fine-loamy, mixed, nonacid, thermic Typic Fluvaquents